STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

November 9, 2012

Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403

ATTN: Mr. Brad Shaver
NCDOT Coordinator

Subject: **Response to US Army Corps of Engineers Letter** for the proposed NC 133 Connector from NC 211-133 (Southport Supply Road) to NC 87-133 (River Road), Brunswick County, TIP R-3324.

References: Application for an Individual Section 401 Water Quality Certification dated July 19, 2012
USACE Request for Additional Information Letter dated, September 18, 2012 (received September 24, 2012).
NCDOT Response to US Army Corps of Engineers Letter dated, October 18, 2012.

On September 24, 2012, the Department received a letter from US Army Corps of Engineers (USACE) placing the permit application for the above-referenced project on-hold, until suitable responses are provided addressing a lack of necessary information. The purpose of this letter is to provide information that was not included in our October 18 response to the USACE letter requesting additional information.

1. *Request for revised permit drawings and impact calculations based on valid jurisdictional determination (JD).*

   The NCDOT is in the process of revising the permit drawings to reflect the updates and changes to jurisdictional features that arose from the on-site JD on September 12, 2012. Wetland WI should have been included on Wetland's WL data sheet. Please find the above mentioned changes as well as the Rapanos forms and revised jurisdictional maps.

2. Site 1: R*emoval of existing culverts will benefit stream and should be footnoted as culvert removal and not stream fill.*

   Impact calculations were revised to remove the impacts from the stream relocation.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

3. Site 4: *Relocated stream not accounted for in mitigation summary.*

   The portion of the relocated stream not accounted for on the plans has been added, and the mitigation summary has been updated.

   - Will twin 60" culverts need dewatering and temporary stream impacts outside permanent impacted areas?

   There is no need for temporary stream impact as the channel change and pipes can be installed in the dry and then have the water turned through them.

4. Site 5: N*otes equalizer pipes but does not show them in cross section drawings indicating burial or not, please clarify.*

   Response provided in previous correspondence.

5. Site 6: *Will dewatering be necessary for installation of 48" pipe into tail ditch along WD?*

   There will be no need for dewatering at Site 6. The new pipe and channel can be installed in the dry and then have the water turned through them.

6. Site 7: *Will dewatering be necessary for installation of 48" pipe?*

   There will be no need for dewatering at Site 7. The new pipe and channel can be installed in the dry and then have the water turned through them.

7. Sites 8 and 9: *NCDOT was asked to clarify if equalizer pipes will be buried or not on Sites 8*

   The equalizer pipes a Sites 8 and 10 will not be buried. A note to this effect has been added to the permit drawings.

8. Site 9: *Are there cross sections of the sill to maintain low flow conditions in the current submittal?*

   A detail showing the sill layout for the culvert has been added to the permit drawings. The low flow conditions are being maintained.

9. Site 11: *Existing channel is approximately as wide as current 48"structure, yet new structure proposed is 9'. What is being implemented to maintain the low flow channel at this proposed crossing?*

   A detail showing the sill layout for the culvert has been added to the permit drawings. The low flow conditions are being maintained.

10. Site 12: *Any utility easement with forested wetlands being cleared and maintained should have mitigation proposed for associated impacts.*

    Response provided in previous correspondence.

11. Site 12: *Existing ditches along NC 87/133 are being moved further into and along wetland areas. The USACE would suggest using the Skaggs method to determine the lateral influence of moving the ditches and then would propose an appropriate mitigation plan.*

    Response provided in previous correspondence.

12. *There is a discrepancy in the riparian mitigation numbers between Table 1 of the permit application and the EEP compensatory mitigation acceptance letter.*

    Response provided in previous correspondence.

The NCDOT feels this response has adequately addressed the USACE request for clarification. Revised permit drawings, plans, as well as the JD package will be submitted by November 1, 2012.

If you have any questions or need additional information, please call or email John Merritt at (919)707-6140 or jsmerritt@ncdot.gov.

Sincerely,

for Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc:

Mr. Mason Herndon, NCDWQ Fayetteville Office
Mr. Monte Matthews, USACE Raleigh Field Office
Mr. Stoney Mathis, NCDOT Division 3 Environmental Officer
Mr. Steve Sollod, NC Division of Coastal Management

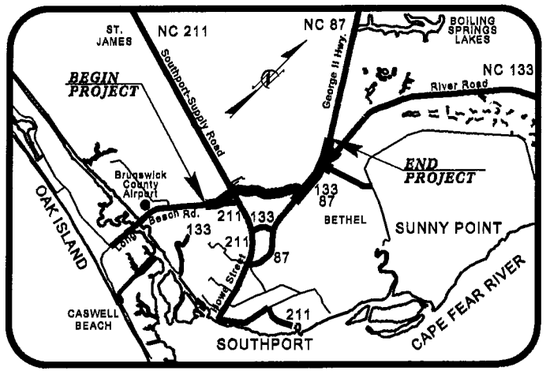
09/28/99

TIP PROJECT: R-3324

CONTRACT: C202155

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3324	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34531.1.1	STP-0133(3)	PE
34531.2.1	STP-0133(3)	R/W & Utilities
34531.3.1	STP-0133(7)	CONST.

BRUNSWICK COUNTY

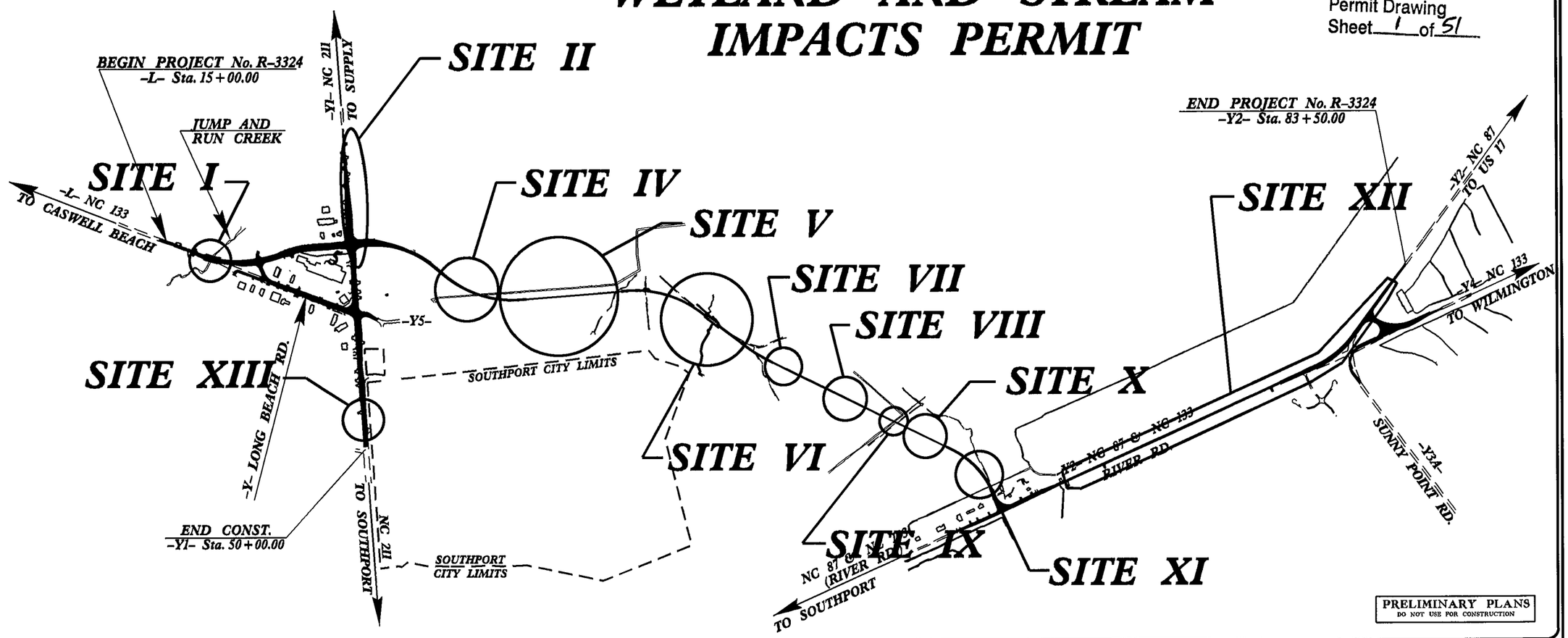
LOCATION: NEW ROUTE FROM NC 133 (LONG BEACH RD.) TO NC 133.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, STRUCTURES, CULVERTS, RETAINING WALL.

NAD 83/95

Permit Drawing
Sheet 1 of 51

WETLAND AND STREAM IMPACTS PERMIT



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2009 = 9,514 - 13,720
ADT 2033 = 13,620 - 47,170
DHV = 50 %
D = 10 %
T = 5 % *
V = 50 MPH
FUNCTIONAL CLASSIFICATION: LOCAL
* TTST 2% DUAL 3%

PROJECT LENGTH

LENGTH ROADWAY TIP No. R-3324 (-L-)	=	2.193 MILES
LENGTH ROADWAY TIP No. R-3324 (-Y2-)	=	1.134 MILES
LENGTH STRUCTURES PROJECT No. R-3324:		
(@ Jump-n-Run Creek)	=	0.026 MILES
(@ Trib. to Dutchman Creek)	=	0.030 MILES
TOTAL LENGTH TIP PROJECT No. R-3324	=	3.271 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 31, 2008

LETTING DATE: FEBRUARY 15, 2013

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

STEVE KENDALL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

TIP PROJECT: R-3324

CONTRACT: C202155

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3324	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34531.1.1	STP-0133(3)	PE
34531.2.1	STP-0133(3)	R/W & Utilities
34531.3.1	STP-0133(7)	CONST.

Permit Drawing Sheet 2 of 51

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

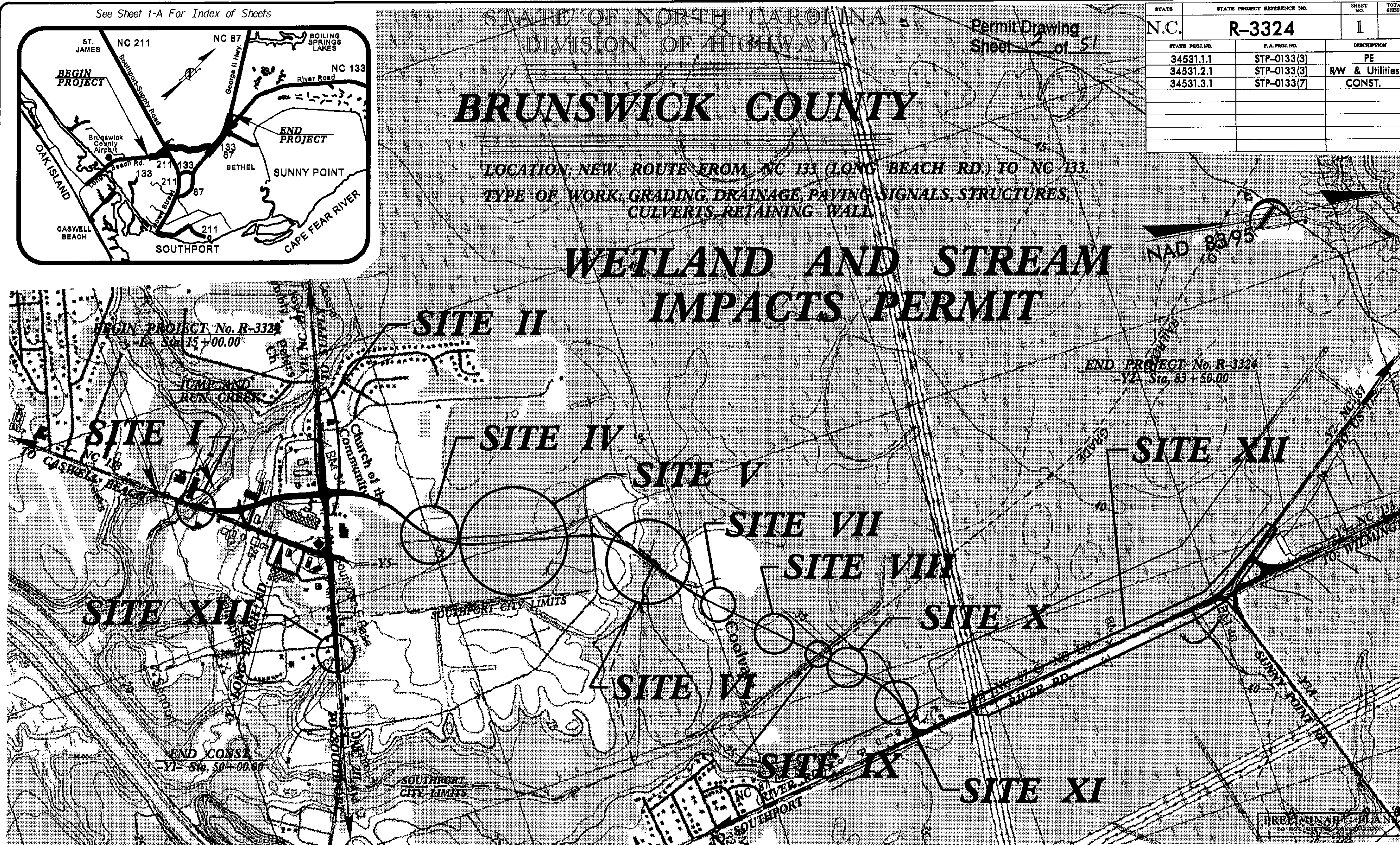
BRUNSWICK COUNTY

LOCATION: NEW ROUTE FROM NC 133 (LONG BEACH RD.) TO NC 133.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, STRUCTURES, CULVERTS, RETAINING WALL

WETLAND AND STREAM IMPACTS PERMIT

See Sheet 1-A For Index of Sheets



GRAPHIC SCALES
50 25 0 50 100 — PLANS
50 25 0 50 100 — PROFILE (HORIZONTAL)
10 5 0 10 20 — PROFILE (VERTICAL)

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SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

$$$$$$SYSTIME$$$$$ $$$$$$$DGN$$$$$$$$$$$$$$$$ $$$$$USERNAME$$$$$

09/08/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

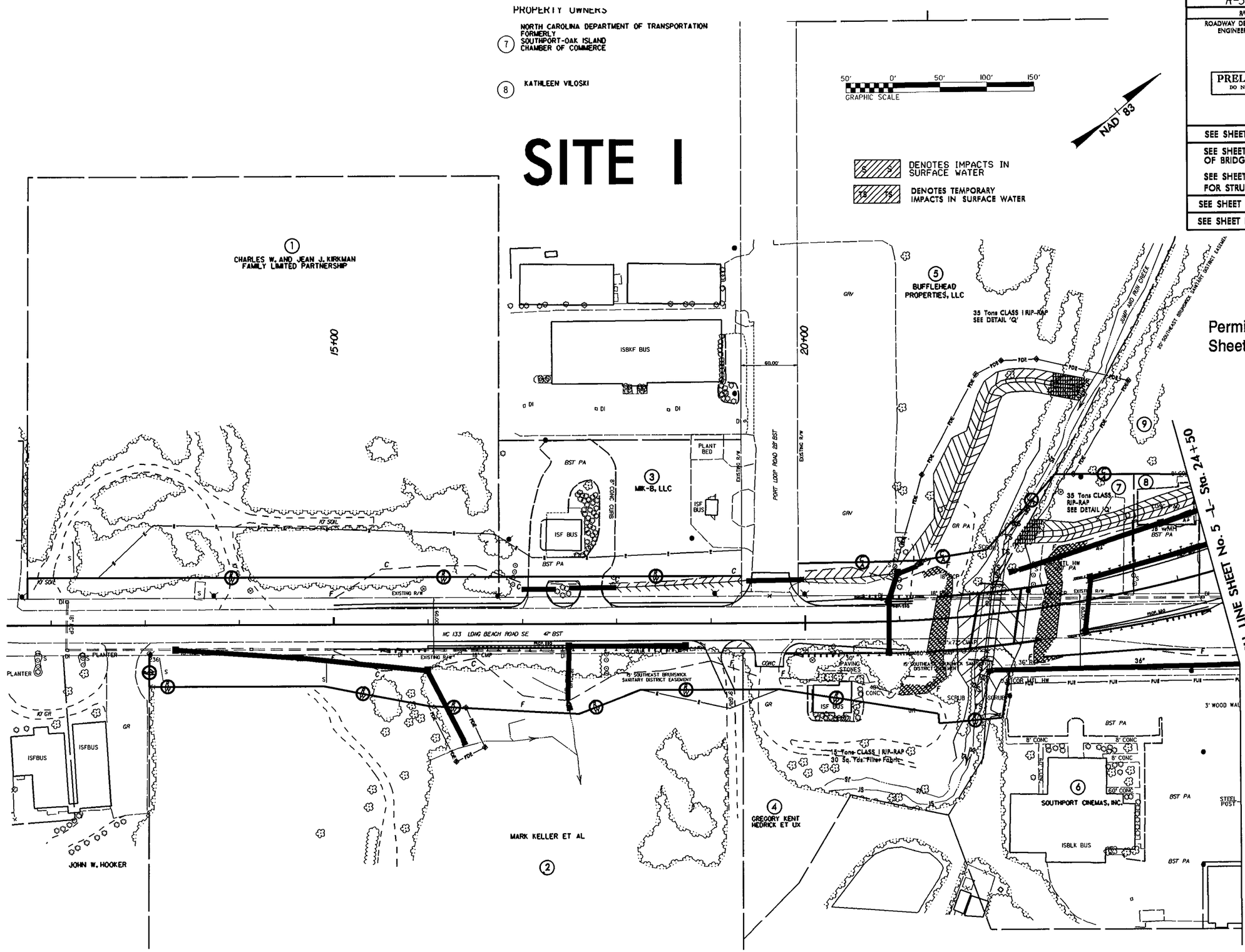
SEE SHEET No. 23 FOR -L- PROFILE

SEE SHEET No. 2-F FOR RELATIONSHIP OF BRIDGE TO ROADWAY SKETCH

SEE SHEET No. S-1 to S- FOR STRUCTURE PLANS

SEE SHEET No. 2-H FOR DITCH DETAILS

SEE SHEET No. 4-A FOR DETOUR PLANS



Permit Drawing
Sheet 3 of 51

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 23 FOR -L- PROFILE

SEE SHEET No. 2-F FOR RELATIONSHIP OF BRIDGE TO ROADWAY SKETCH

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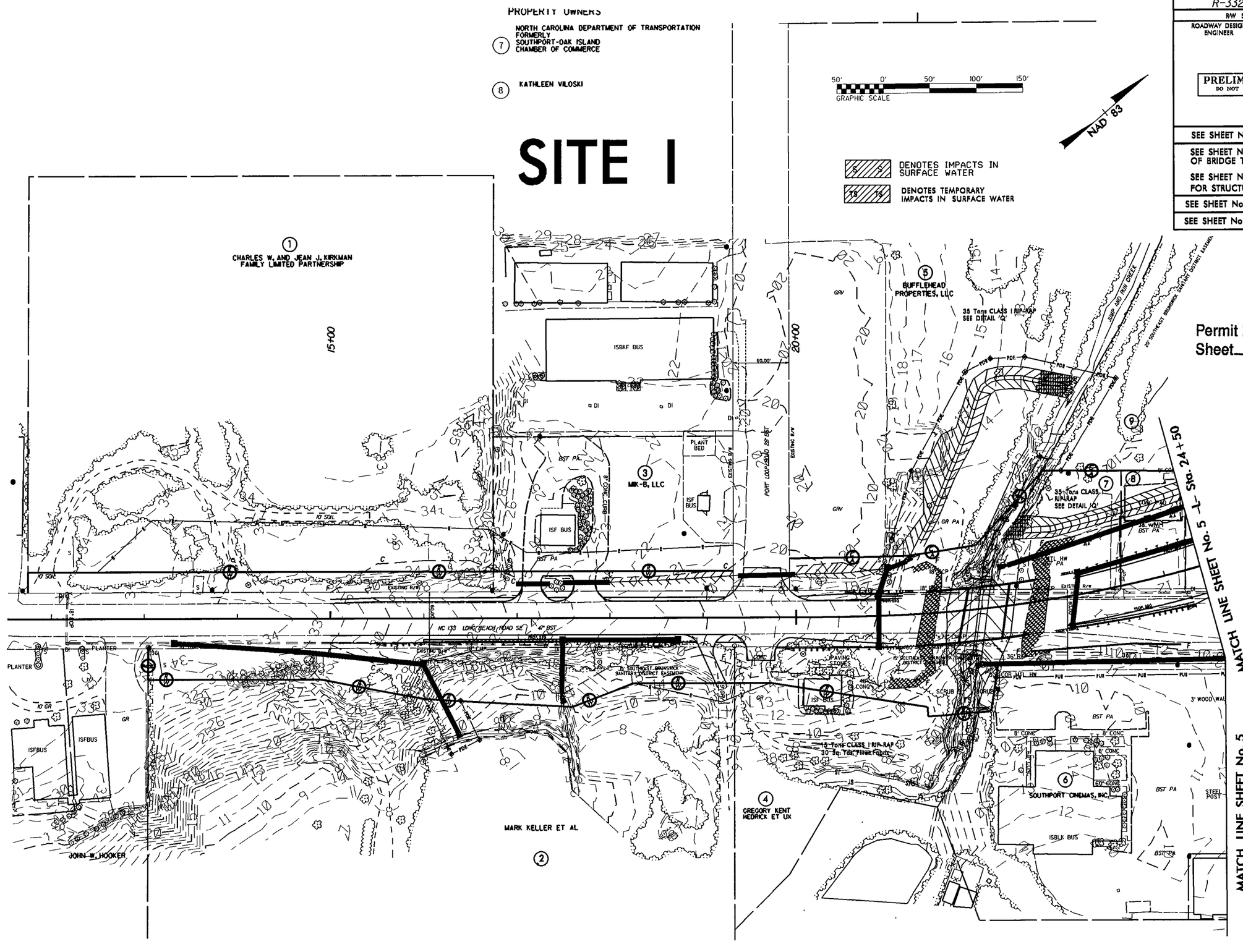


5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 5 of 51

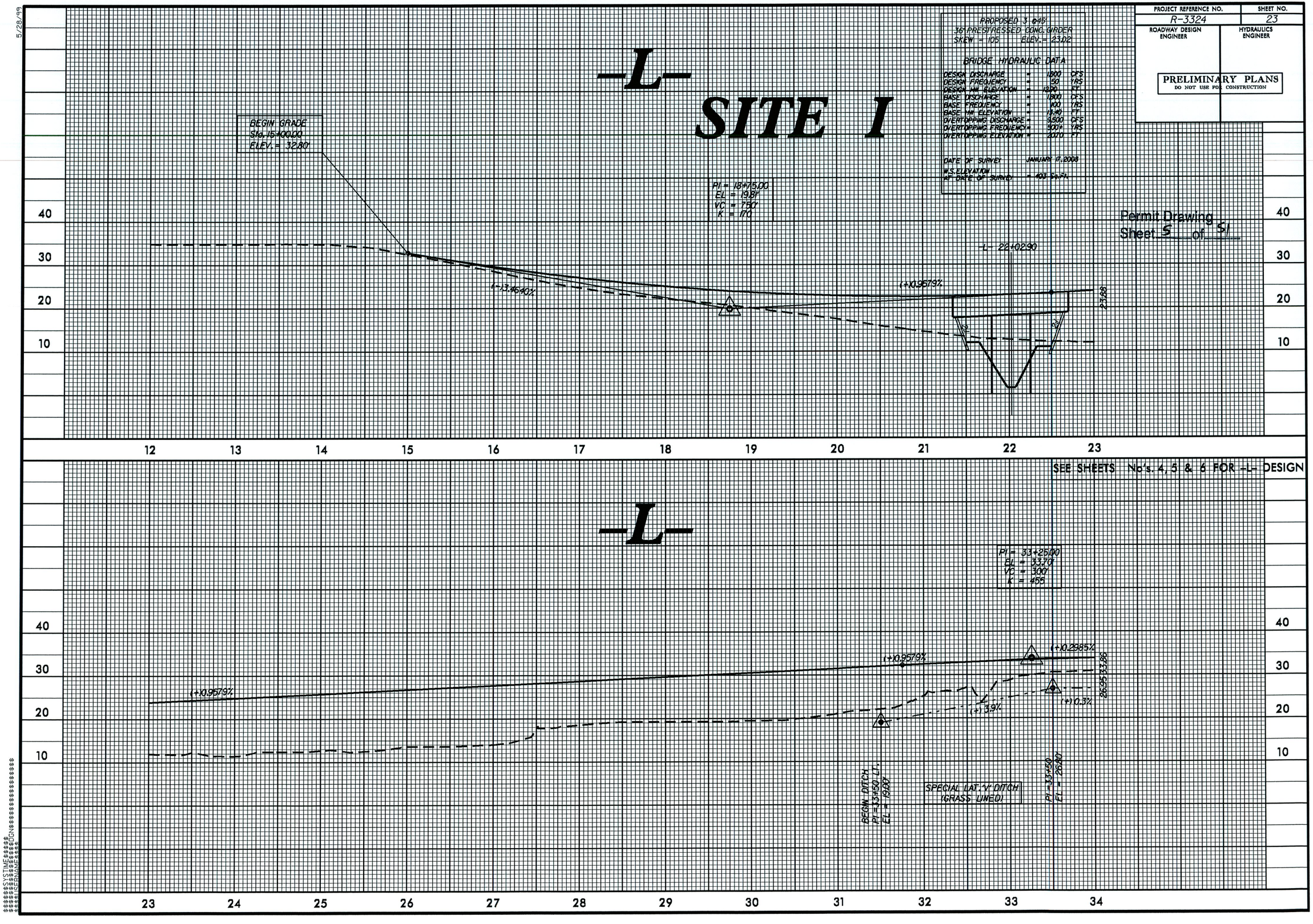
-L- SITE 1

PROPOSED 3 @45'
36" PRESTRESSED CONC. GIRDER
SKEW = 105 ELEV.= 23.02'

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1800	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	18.90	FT
BASE DISCHARGE	=	1800	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	19.40	FT
OVERTOPPING DISCHARGE	=	3500	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	20.70	FT

DATE OF SURVEY JANUARY 17, 2008
W.S. ELEVATION AT DATE OF SURVEY = 403.5 (FT)



SYSTUF
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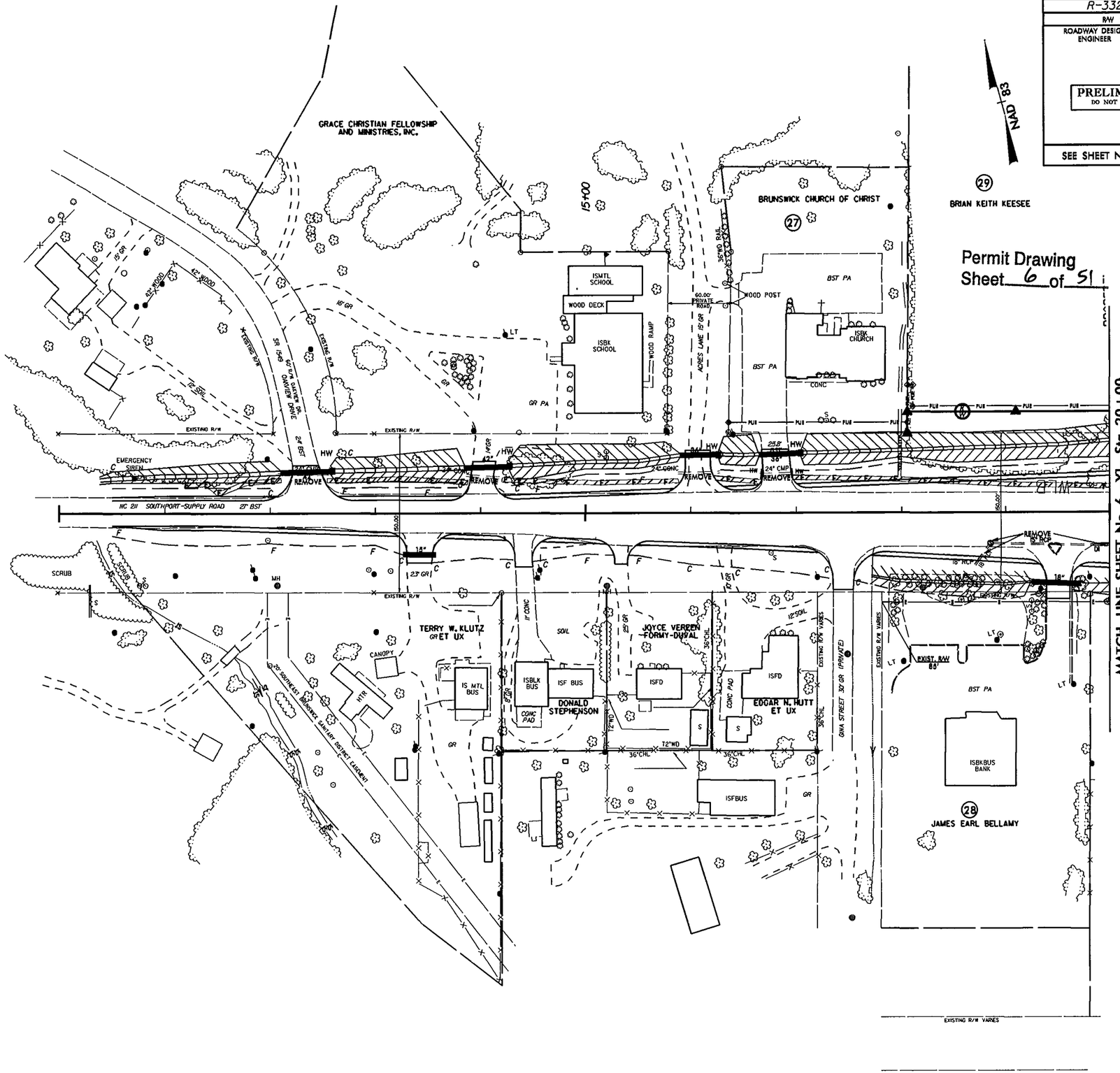
PROJECT REFERENCE NO.	SHEET NO.
R-3324	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 29 FOR -Y1- PROFILE



SITE II

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

50' 0' 50'
GRAPHIC SCALE

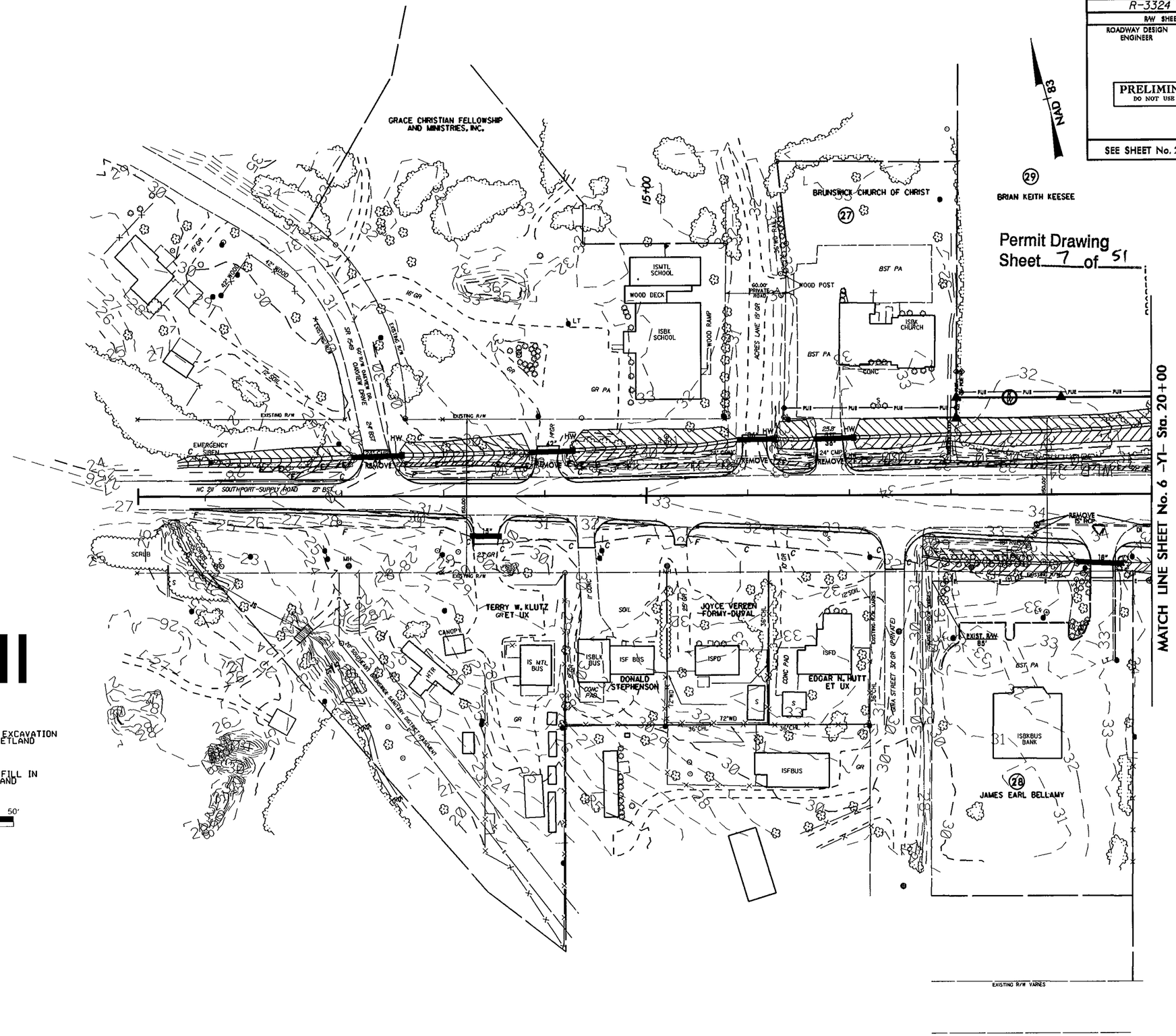
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 29 FOR -Y1- PROFILE

Permit Drawing
Sheet 7 of 51



SITE II

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

50' 0' 50'
GRAPHIC SCALE

8/17/99

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

8/17/99

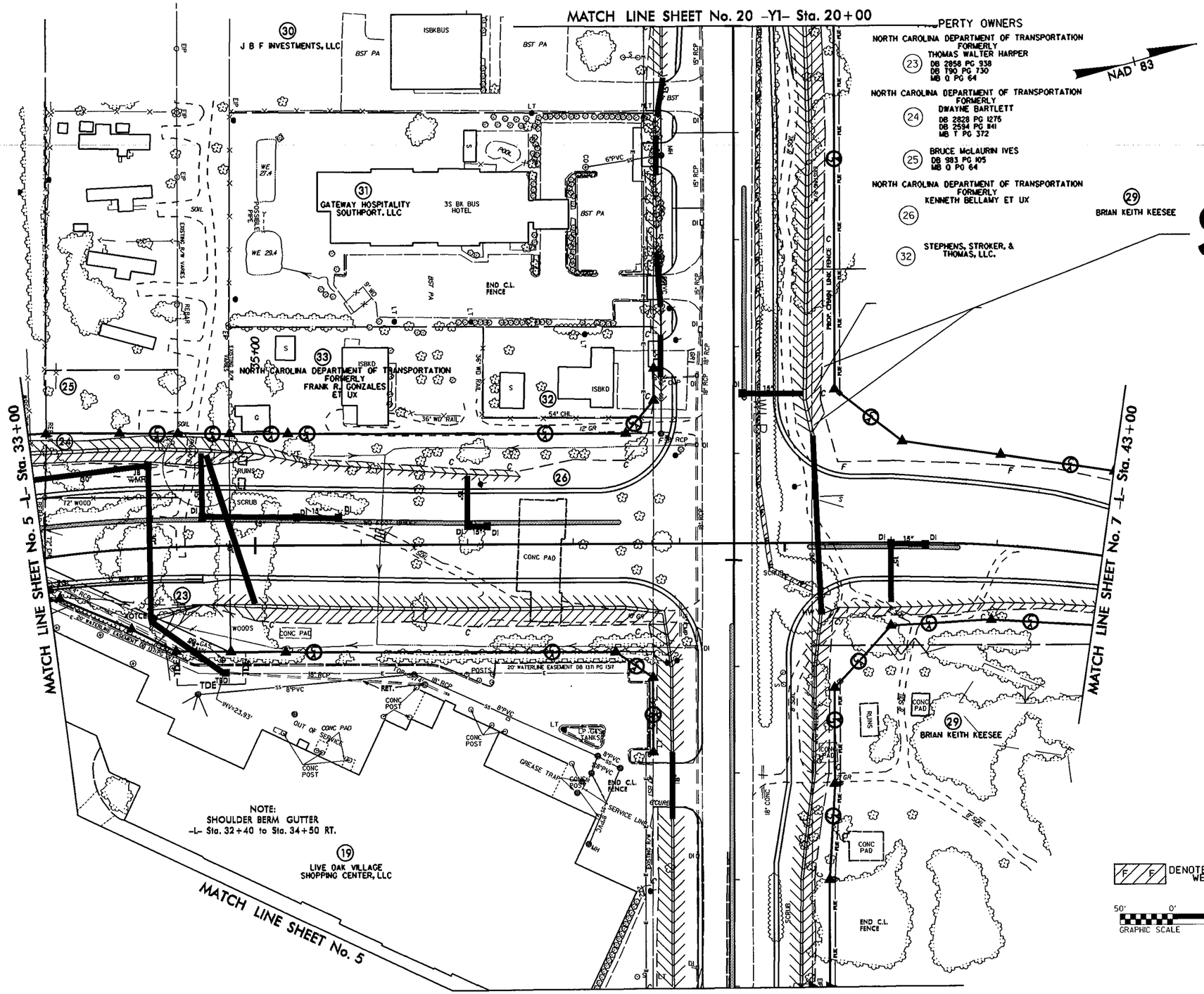
PROJECT REFERENCE NO.	SHEET NO.
R-3324	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 23 & 24 FOR -L- PROFILE
SEE SHEET No. 29 FOR -Y1- PROFILE

SEE SHEET 2-H FOR DITCH DETAILS

SITE II



Permit Drawing
Sheet 8 of 51

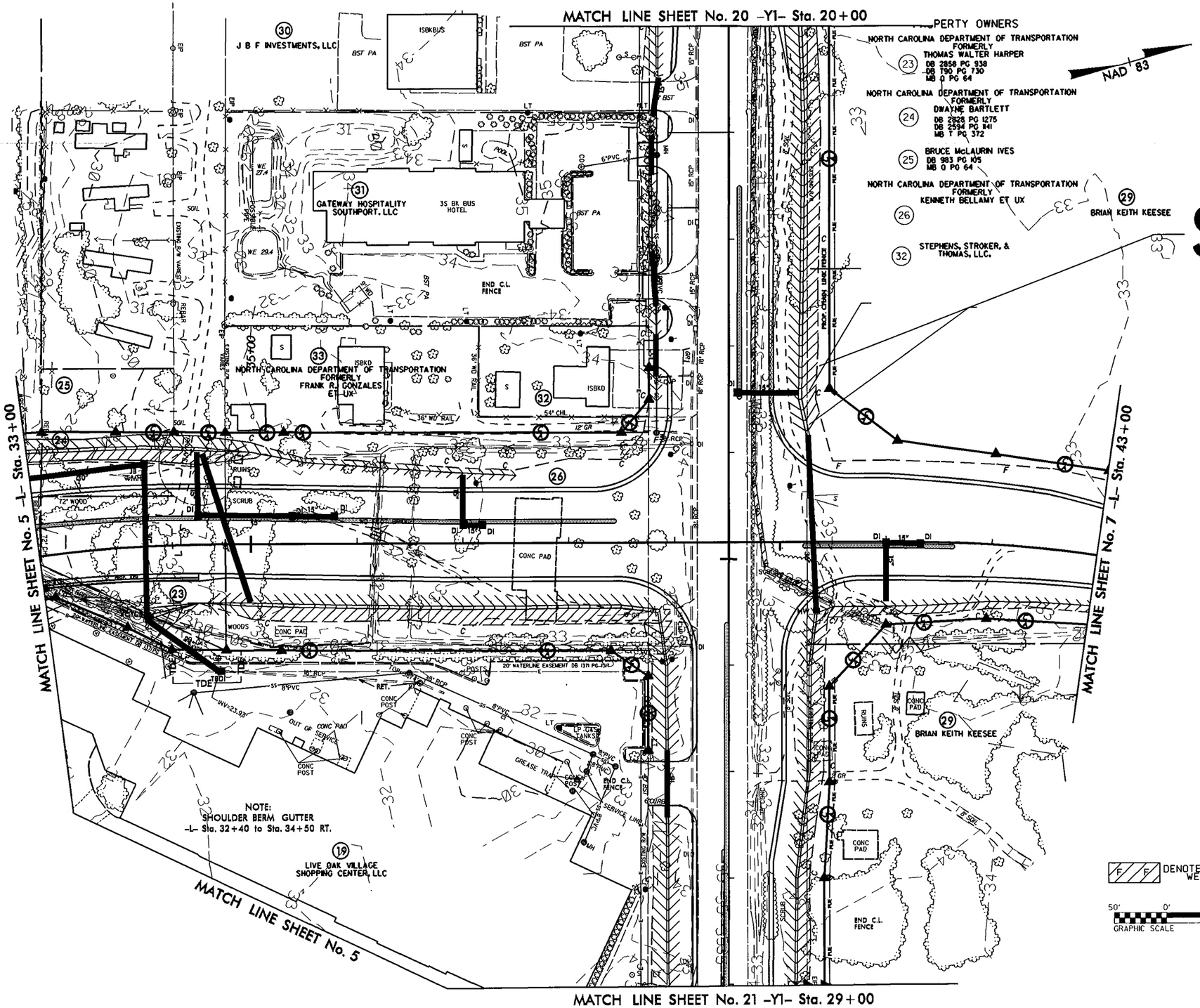
PROJECT REFERENCE NO.	SHEET NO.
R-3324	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

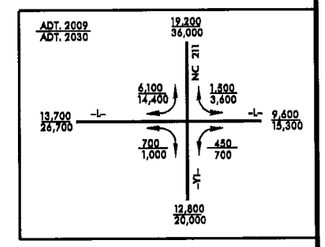
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 23 & 24 FOR -L- PROFILE
SEE SHEET No. 29 FOR -Y1- PROFILE

SEE SHEET 2-H FOR DITCH DETAILS

SITE II





Permit Drawing
Sheet 9 of 51

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$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
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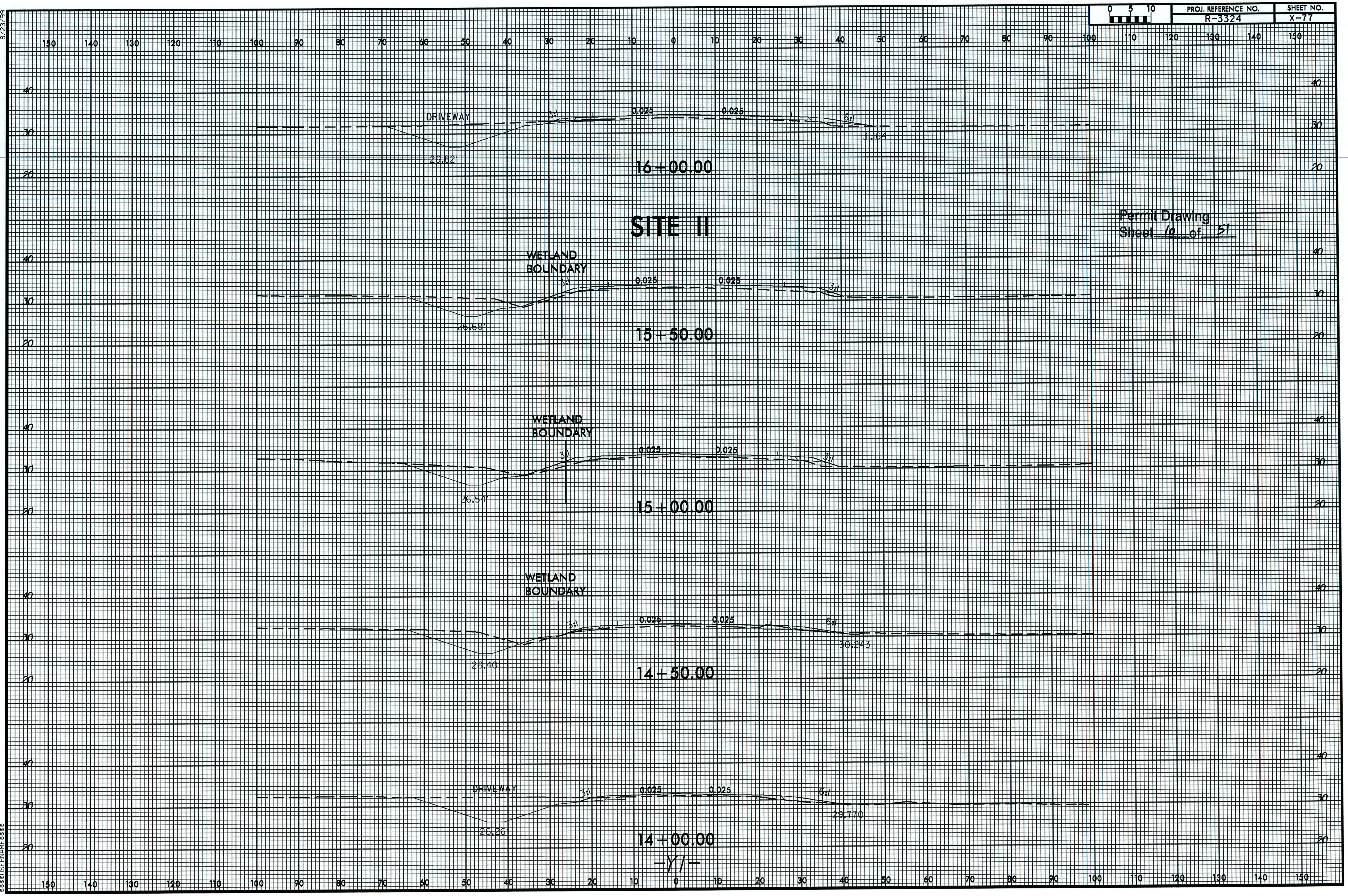
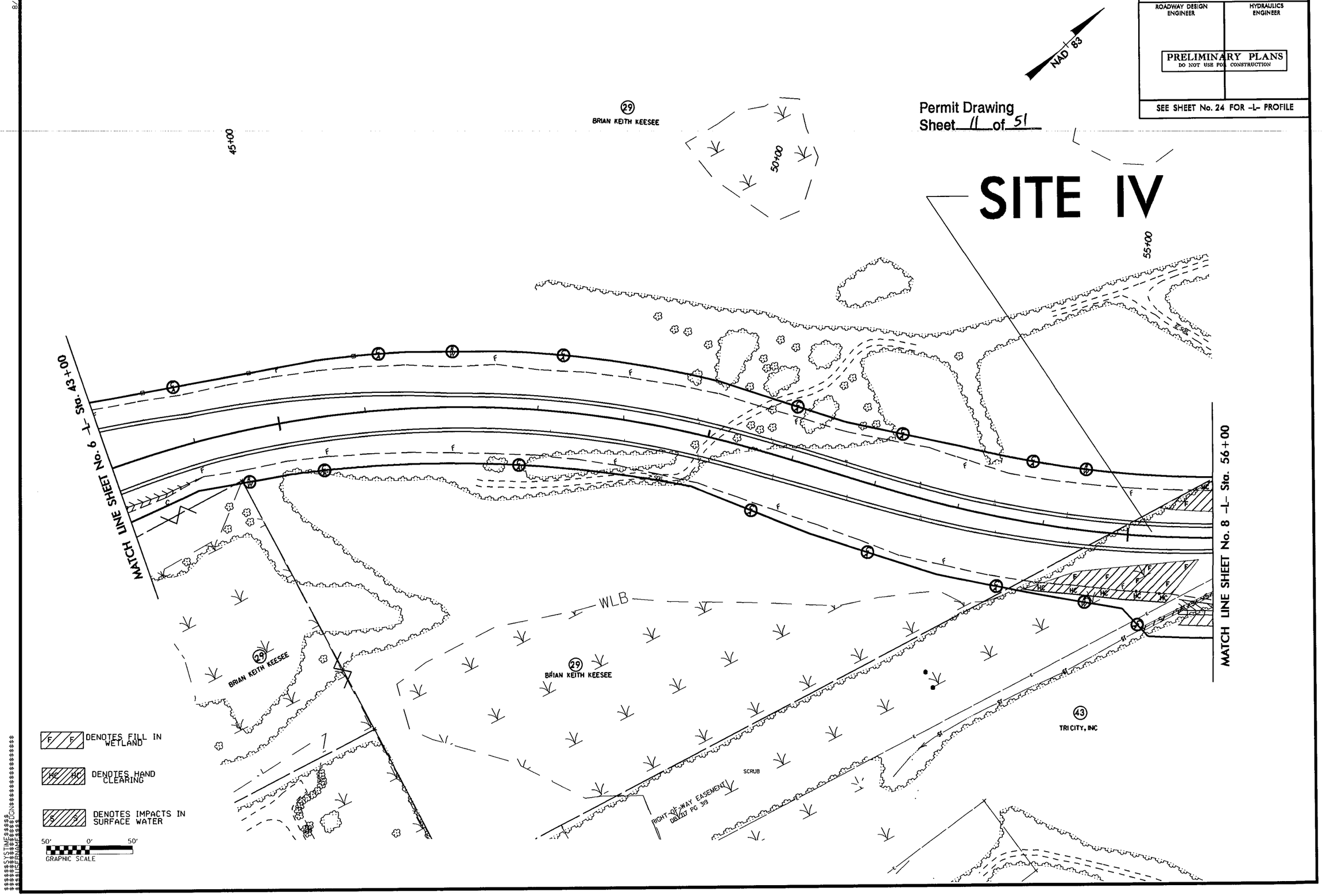

PROJ. REFERENCE NO.
R-3324
SHEET NO.
X-77
DRIVEWAY
26.82'
16+00.00
SITE II
Permit Drawing
Sheet 10 of 51
WETLAND
BOUNDARY
26.68'
15+50.00
WETLAND
BOUNDARY
26.54'
15+00.00
WETLAND
BOUNDARY
26.40
30.243
14+50.00
DRIVEWAY
26.26
29.770
14+00.00
-Y1-

PROJECT REFERENCE NO.	SHEET NO.
R-3324	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 24 FOR -L- PROFILE

Permit Drawing
Sheet 11 of 51



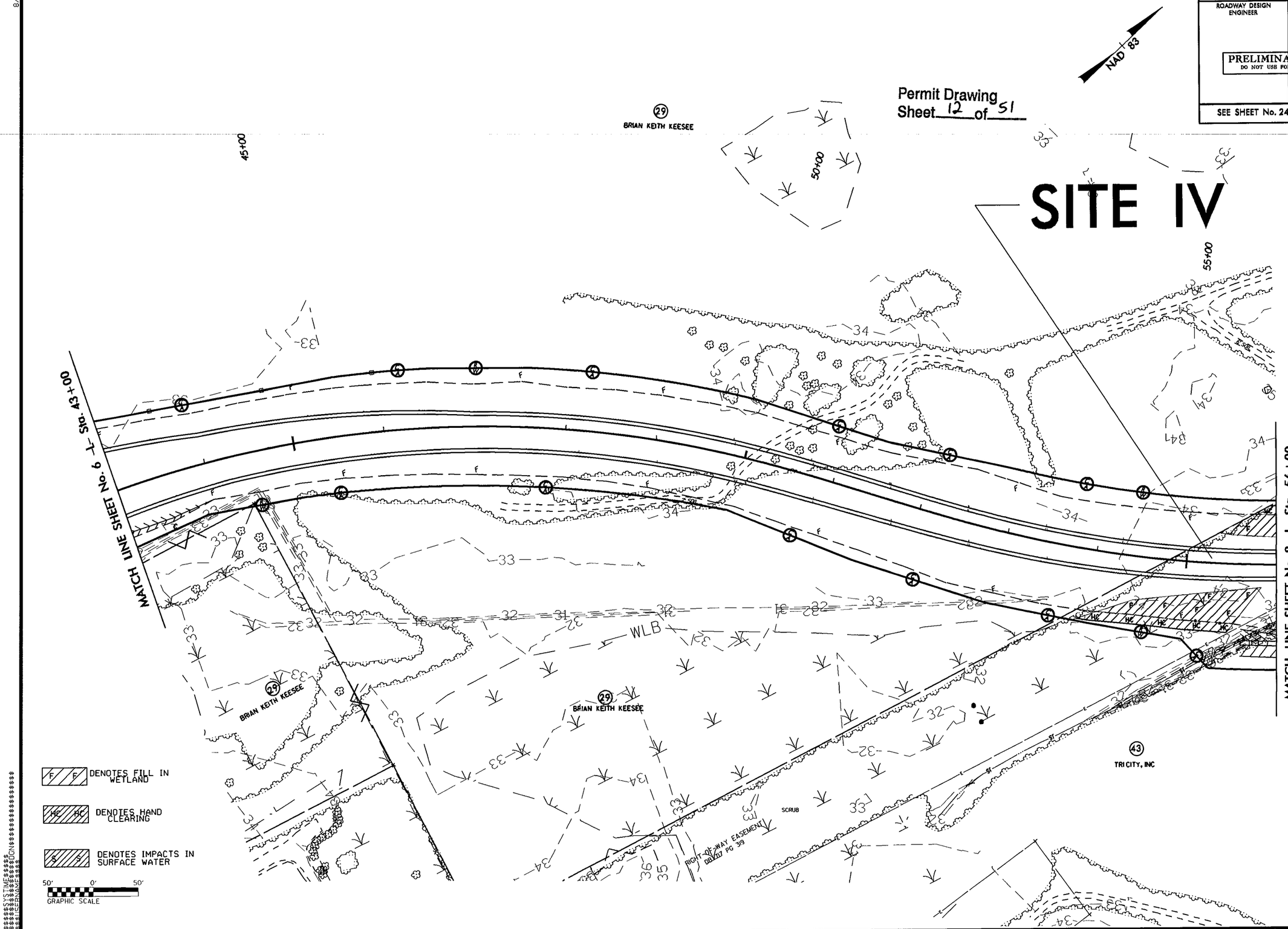
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 24 FOR -L- PROFILE

Permit Drawing
Sheet 12 of 51

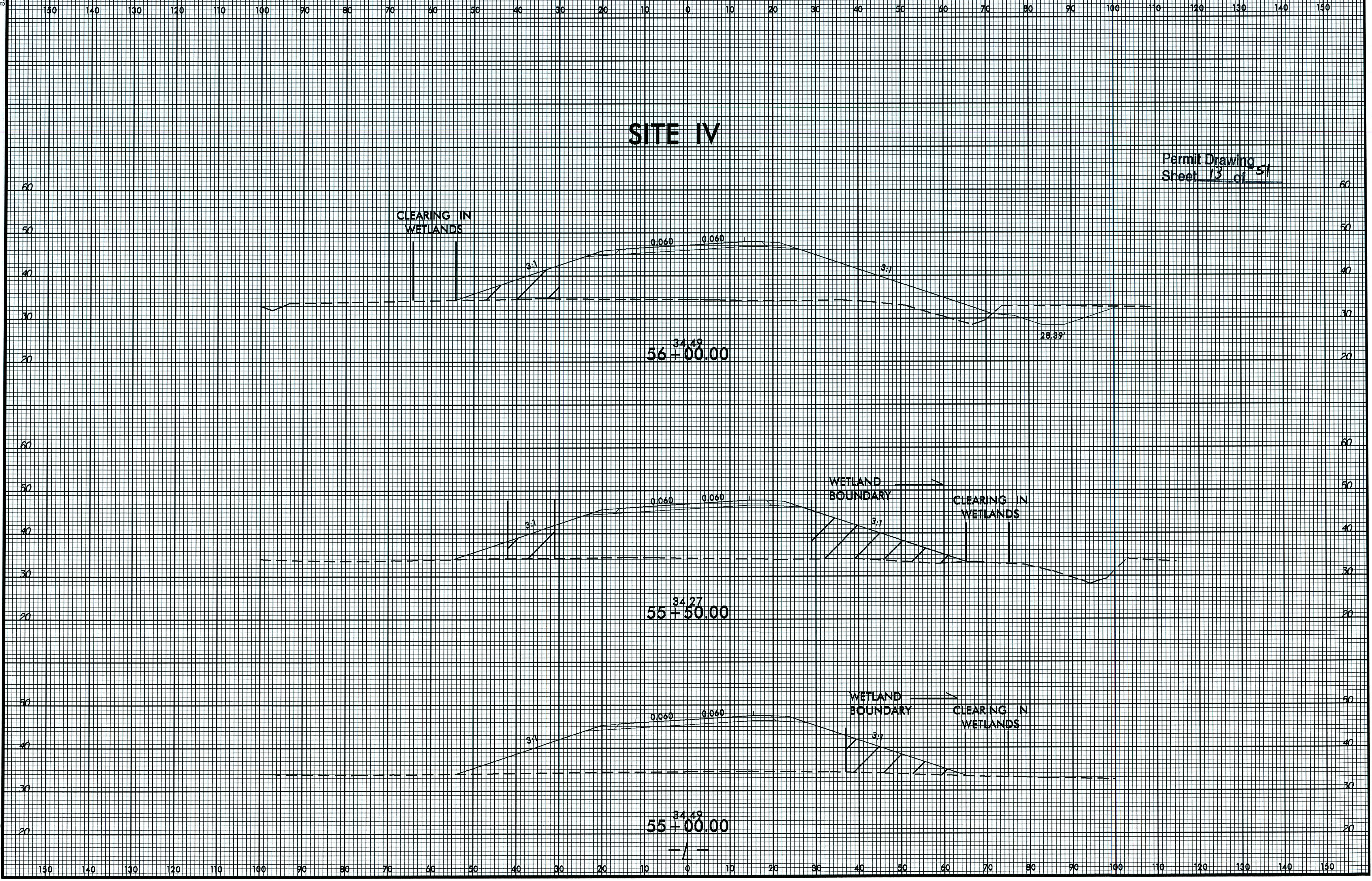


8/17/99

PROJ. REFERENCE NO.	SHEET NO.
R-3324	X-25

SITE IV

Permit Drawing
Sheet 13 of 51

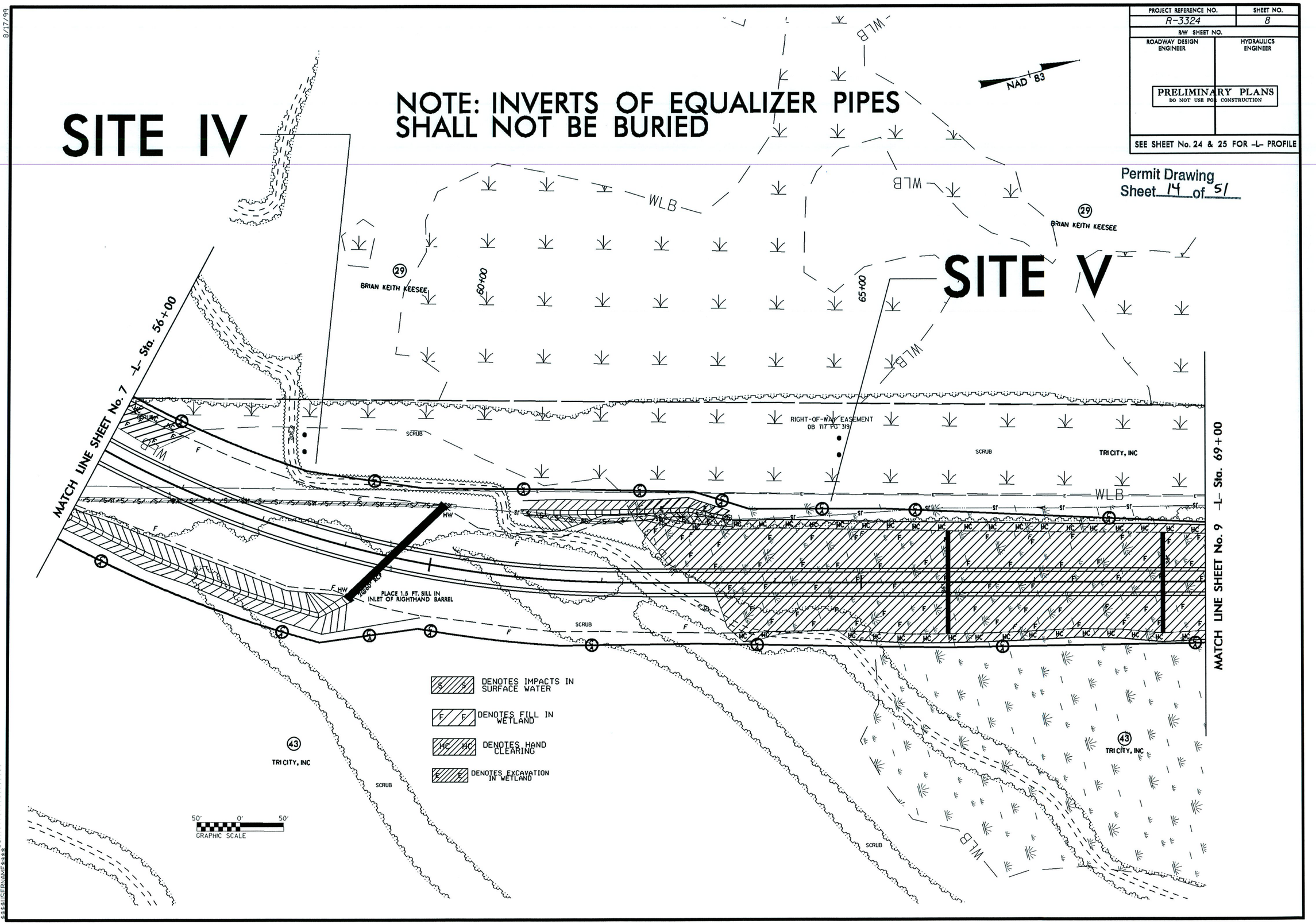


PROJECT REFERENCE NO.	SHEET NO.
R-3324	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

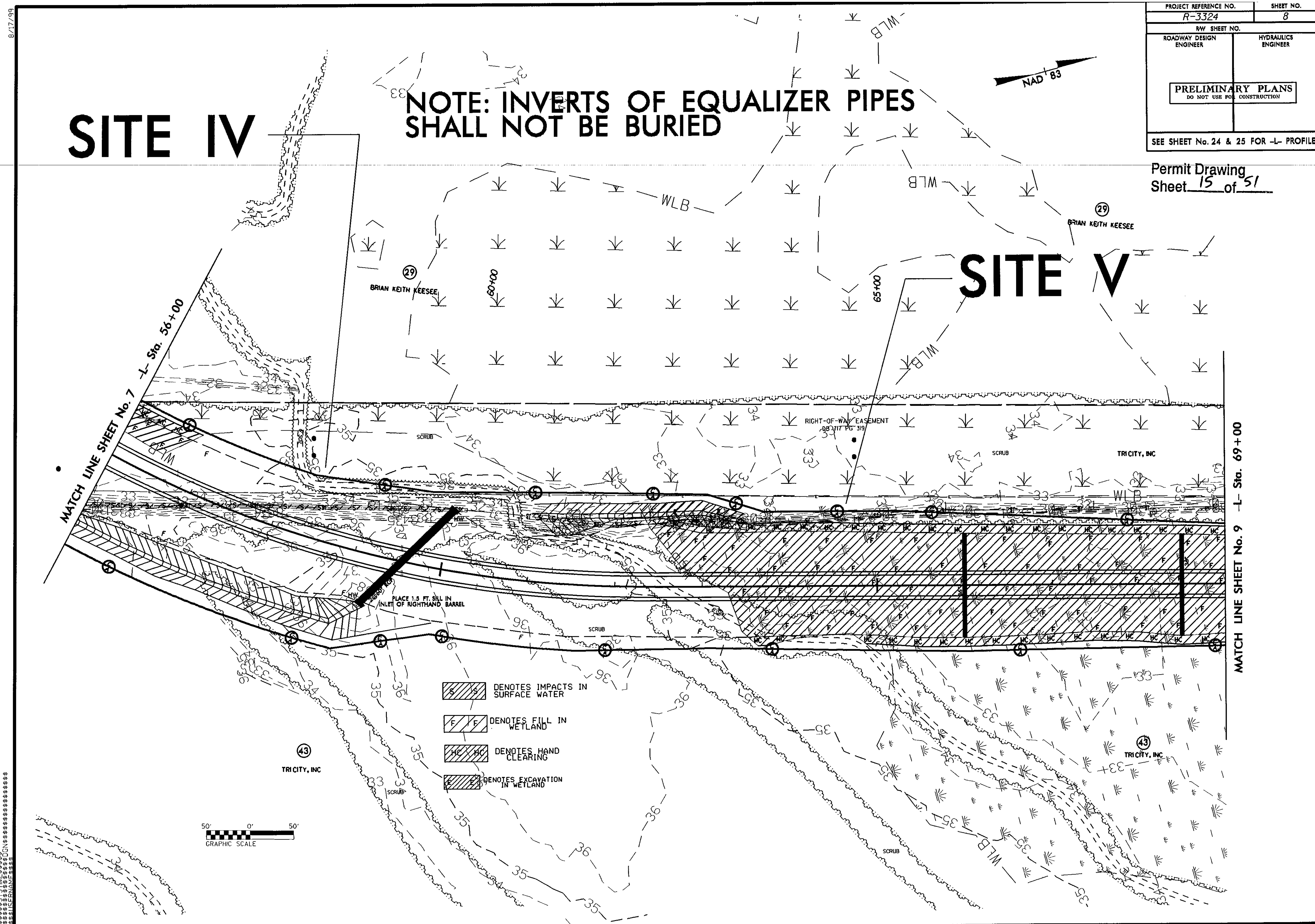
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 24 & 25 FOR -L- PROFILE

Permit Drawing
Sheet 14 of 51



8/17/99

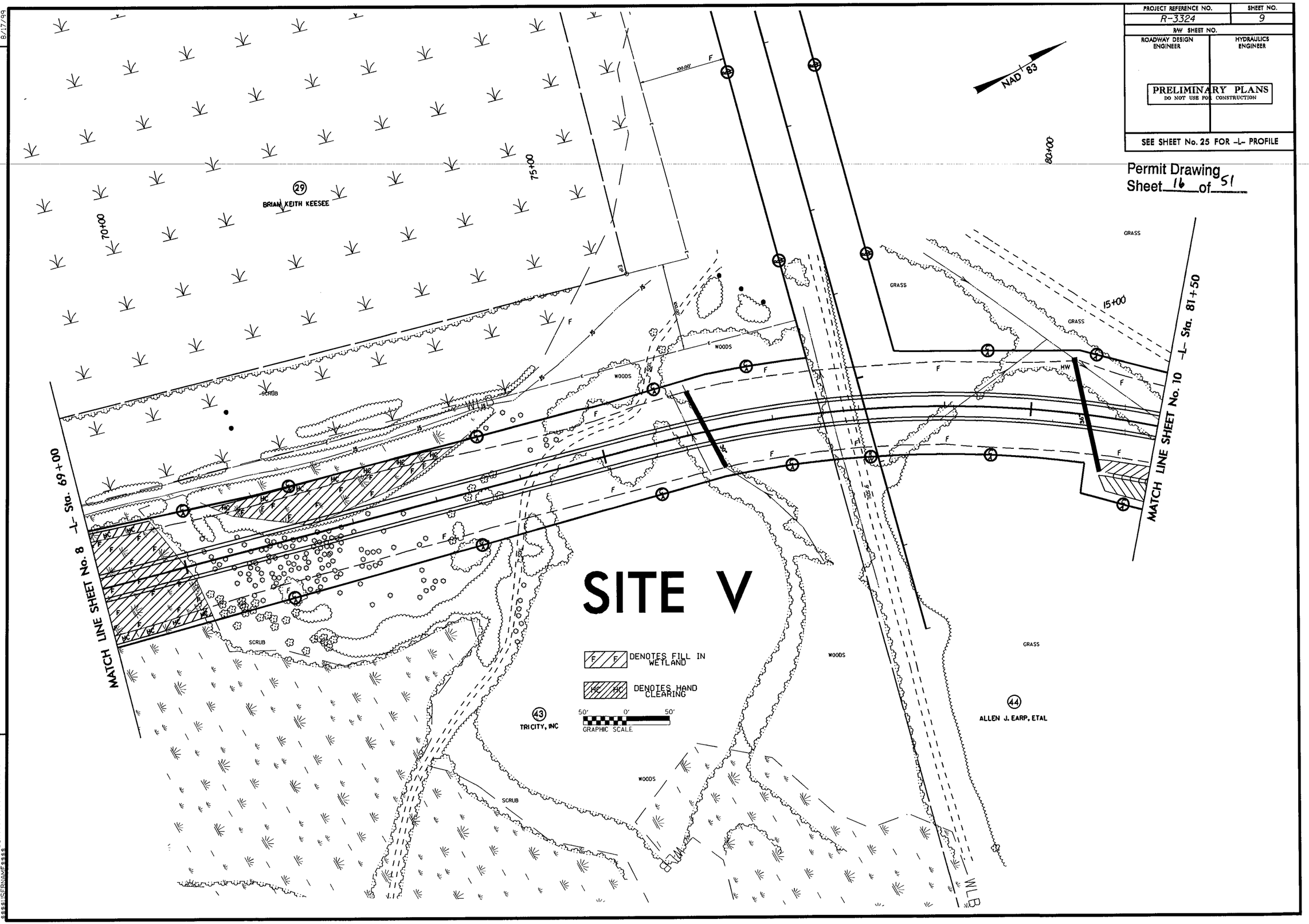

PROJECT REFERENCE NO. R-3324
SHEET NO. 8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SEE SHEET No. 24 & 25 FOR -L- PROFILE
Permit Drawing
Sheet 15 of 51
NOTE: INVERTS OF EQUALIZER PIPES SHALL NOT BE BURIED
SITE IV
SITE V
NAD 83
BRIAN KEITH KEESEE
TRICITY, INC
RIGHT-OF-WAY EASEMENT
SCRUB
WLB
MATCH LINE SHEET No. 7 -L- Sta. 56+00
MATCH LINE SHEET No. 9 -L- Sta. 69+00
60+00
65+00
PLACE 1.5 FT. SILL IN INLET OF RIGHTHAND BARREL
DENOTES IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES EXCAVATION IN WETLAND
GRAPHIC SCALE
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 25 FOR -L- PROFILE

Permit Drawing
Sheet 16 of 51



REVISIONS

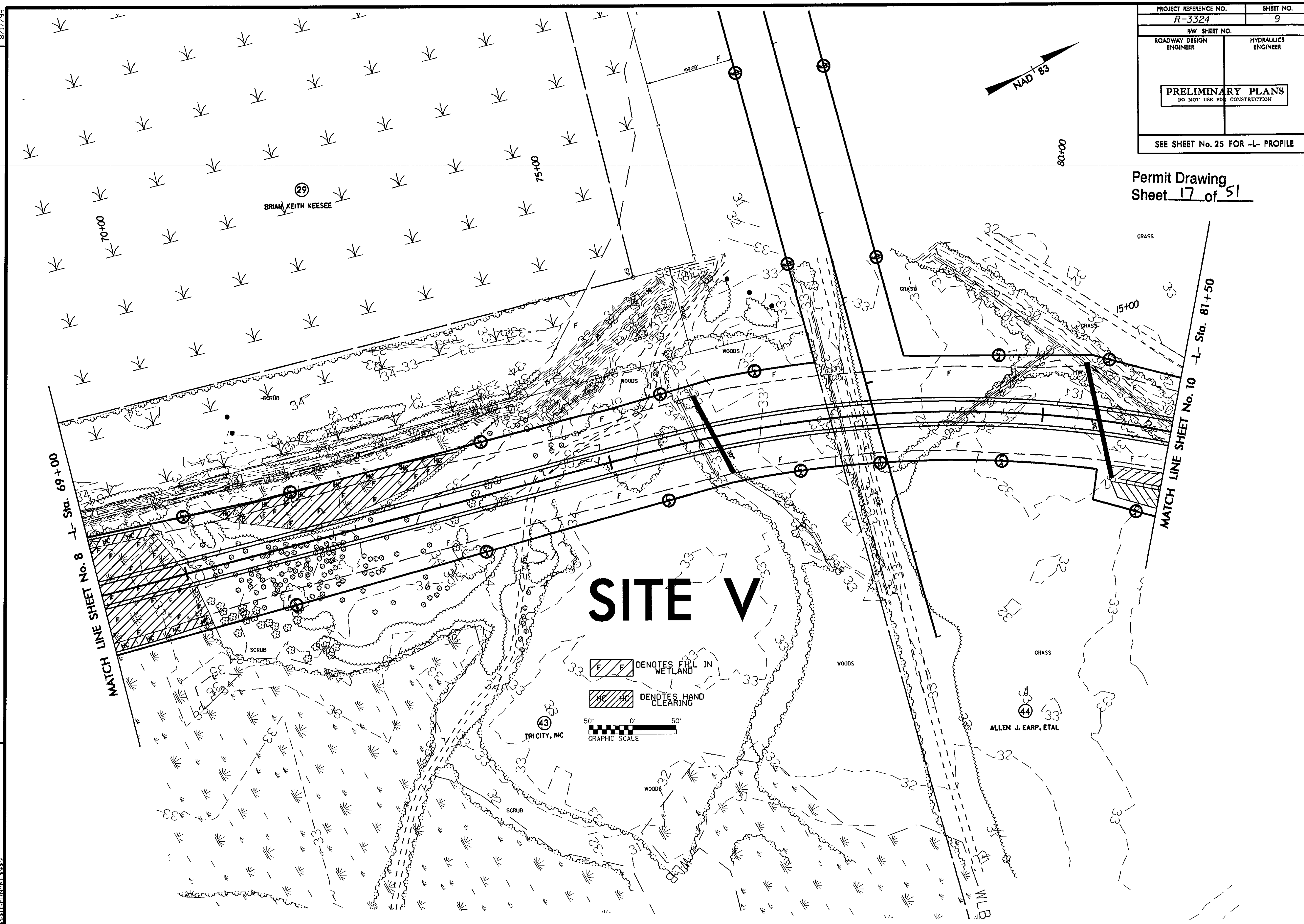
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 25 FOR -L- PROFILE

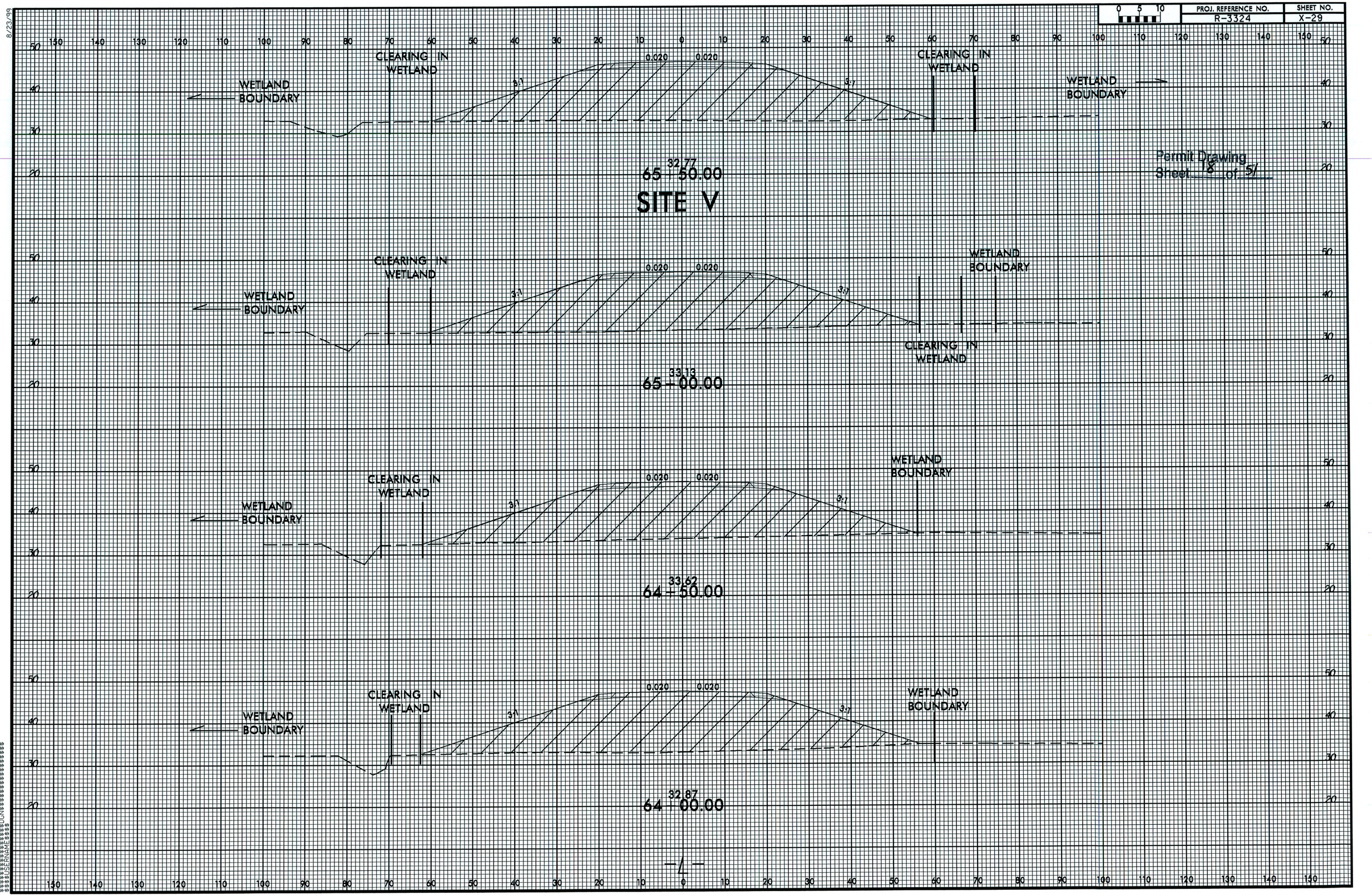
Permit Drawing
Sheet 17 of 51



REVISIONS

8/17/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3324	X-29



Permit Drawing
Sheet 18 of 51

8/23/99

$$$$SYTIME$$$$
$$$$DENAME$$$$
$$$$DGNNAME$$$$

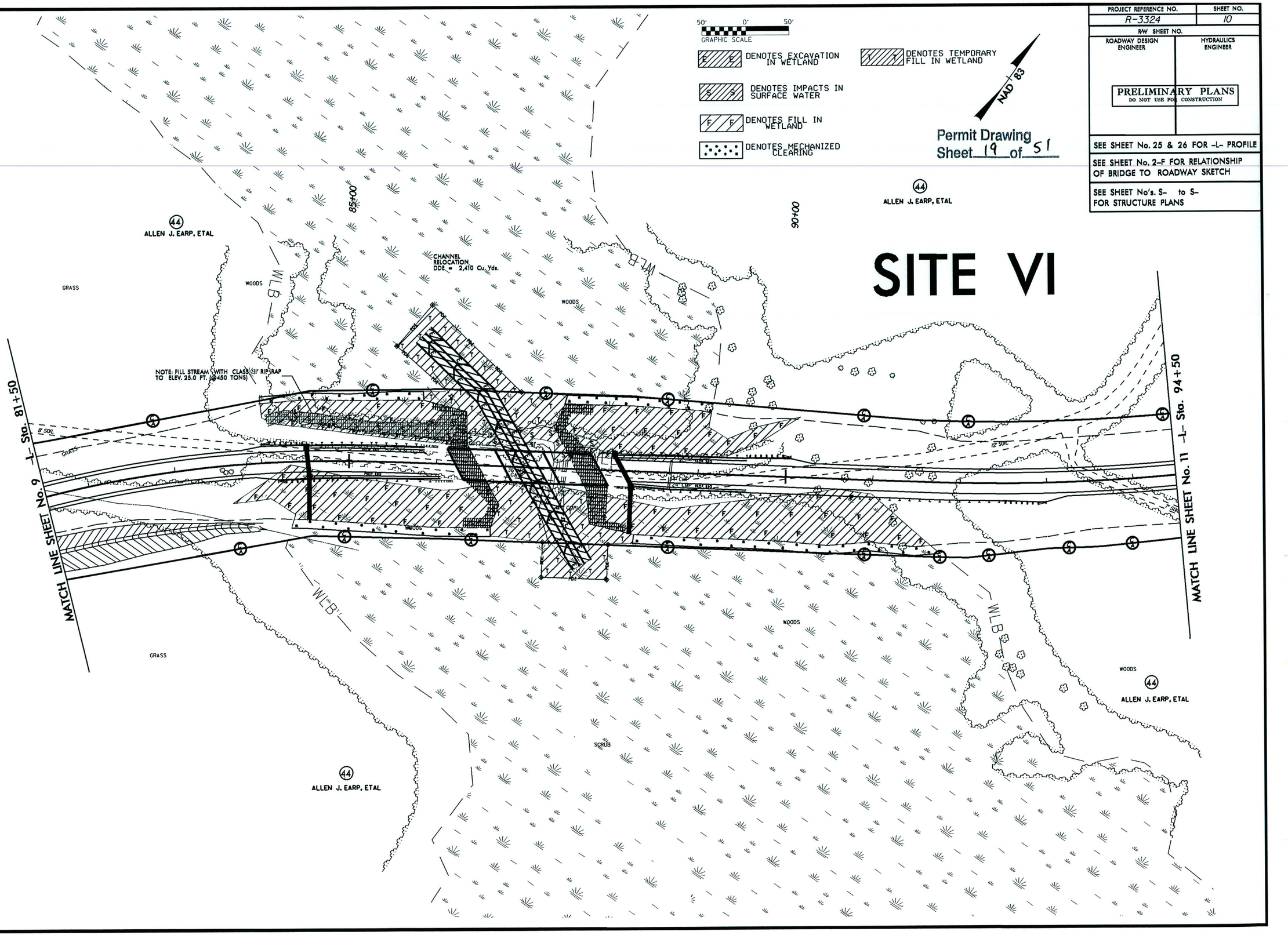
PROJECT REFERENCE NO.	SHEET NO.
R-3324	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

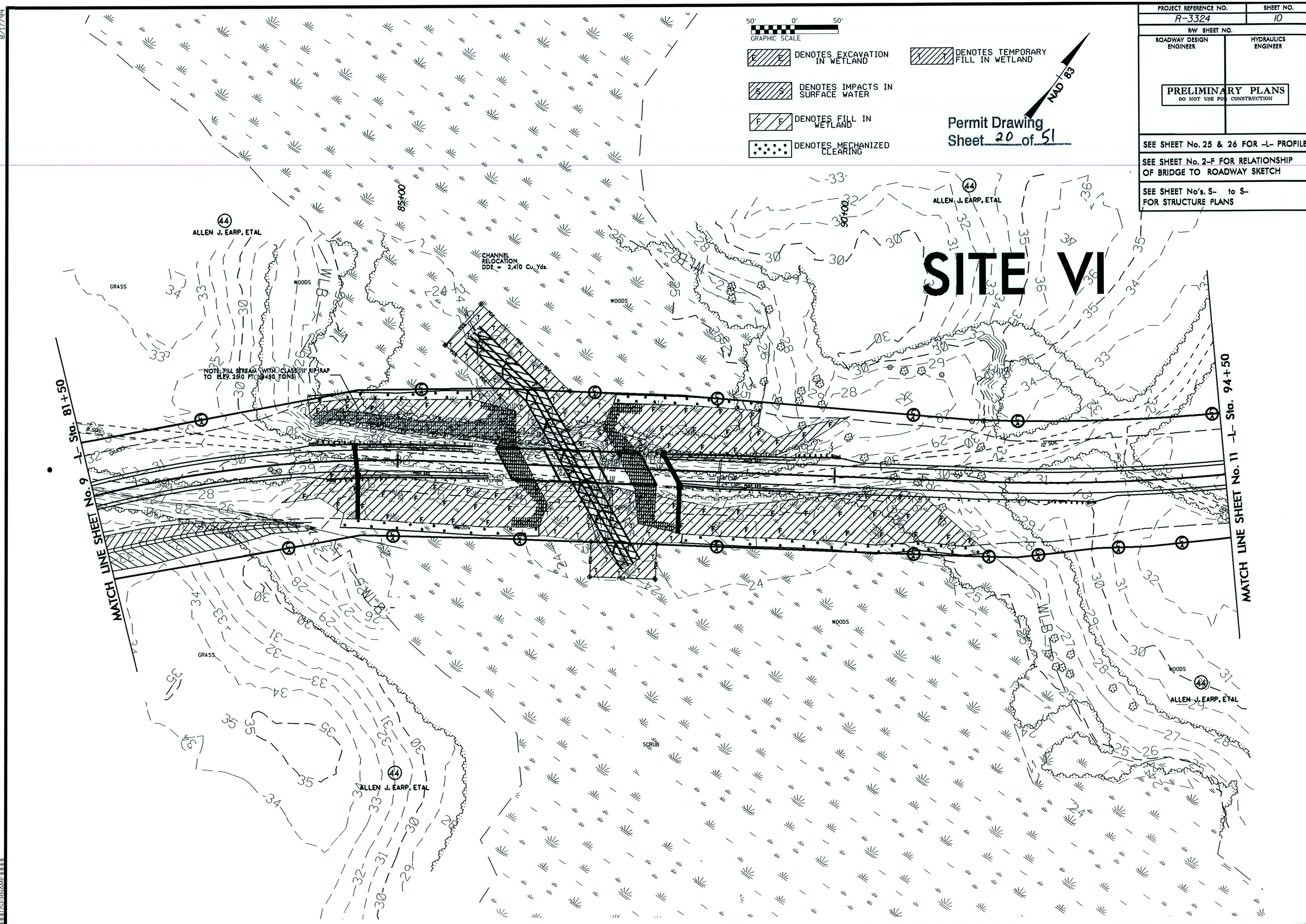
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 25 & 26 FOR -L- PROFILE

SEE SHEET No. 2-F FOR RELATIONSHIP OF BRIDGE TO ROADWAY SKETCH

SEE SHEET No's. S- to S- FOR STRUCTURE PLANS



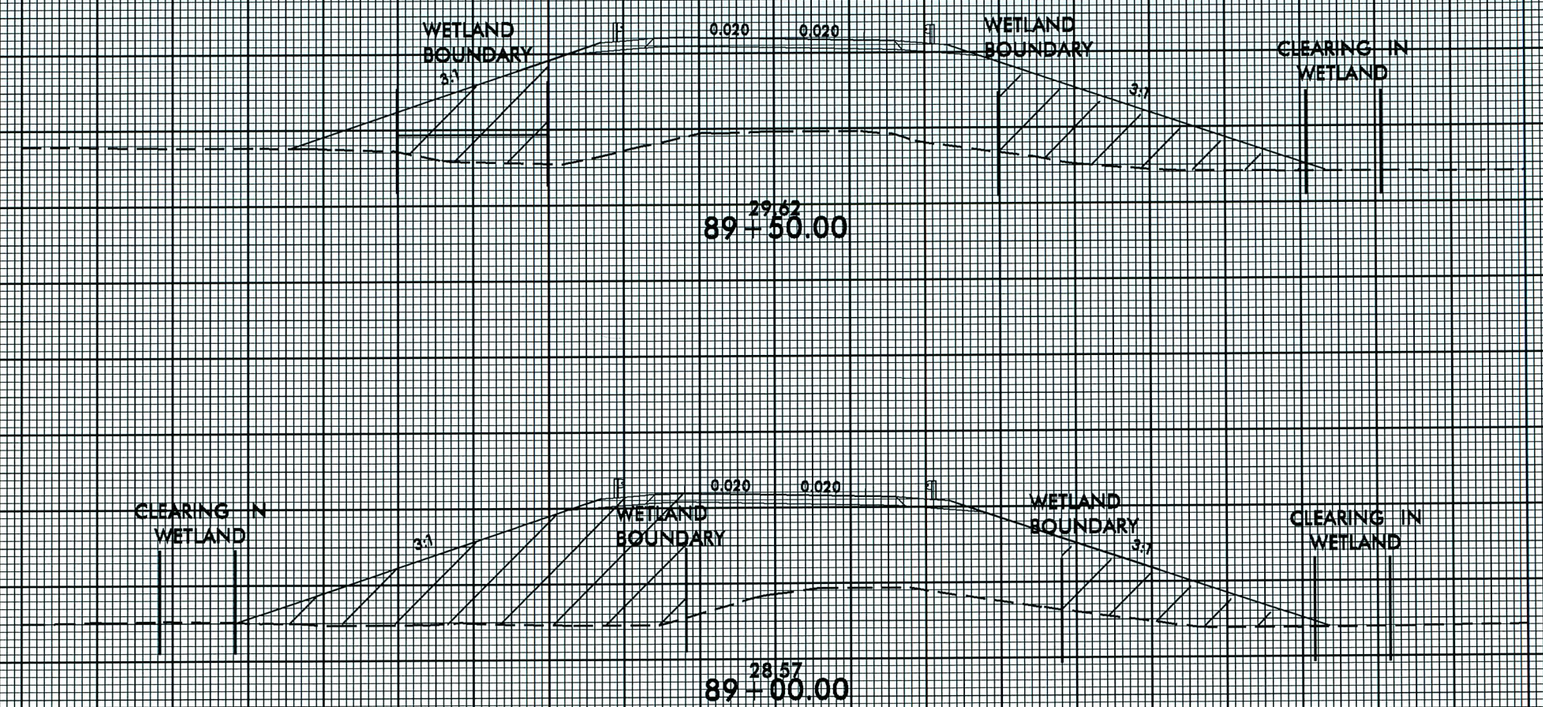


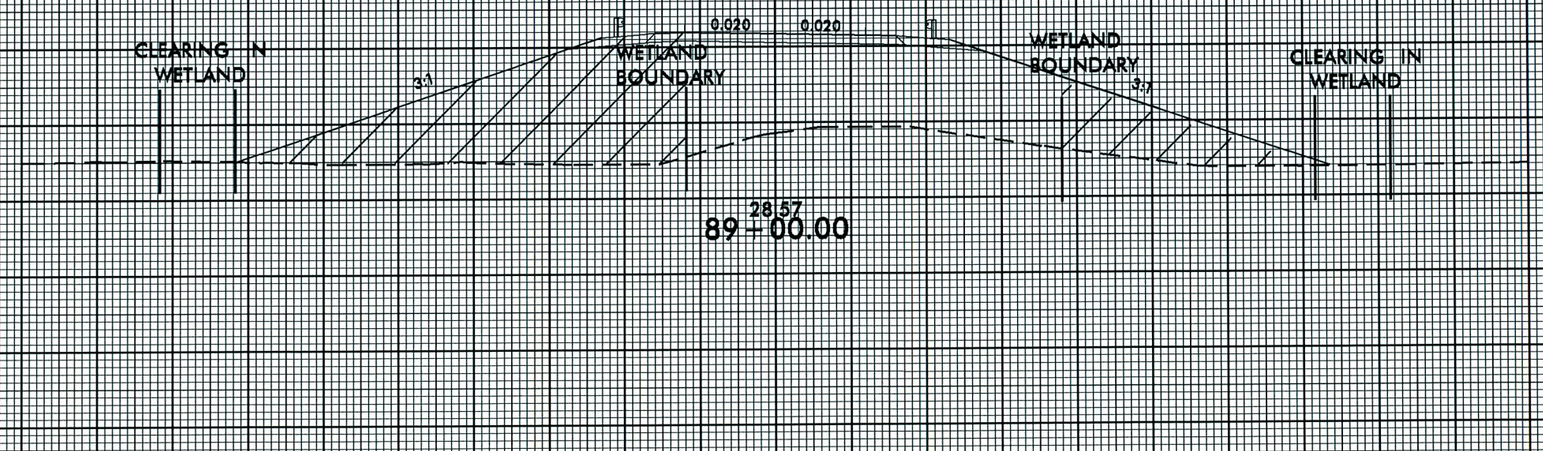
PROJECT REFERENCE NO.
R-3324
SHEET NO.
10
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SEE SHEET No. 25 & 26 FOR -L- PROFILE
SEE SHEET No. 2-F FOR RELATIONSHIP OF BRIDGE TO ROADWAY SKETCH
SEE SHEET No's. S- to S- FOR STRUCTURE PLANS
GRAPHIC SCALE
DENOTES EXCAVATION IN WETLAND
DENOTES TEMPORARY FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
NAD 83
Permit Drawing
Sheet 20 of 51
SITE VI
ALLEN J. EARP, ETAL
CHANNEL RELOCATION
DDE = 2,410 Cu. Yds.
NOTE: FILL STREAM WITH CLASS 'II' RIP RAP TO ELEV. 25.0 FT.
MATCH LINE SHEET No. 9 -L- Sta. 81+50
MATCH LINE SHEET No. 11 -L- Sta. 94+50
85+00
90+00
GRASS
WOODS
SCRUB
WLB
8/17/99

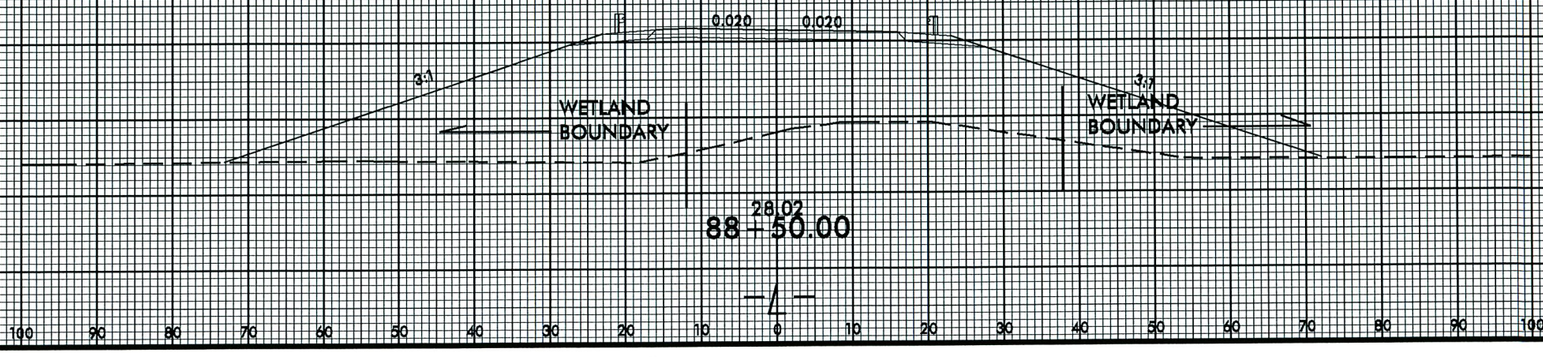
PROJ. REFERENCE NO.	SHEET NO.
R-3324	X-43

SITE VI

Permit Drawing
Sheet 21 of 51







$$$$SYSTIME$$$$
$$$$DATE$$$$
$$$$DGN$$$$
$$$$DRAWN$$$$
$$$$JOBNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 22 of 51

-L- SITE VI

PROPOSED 3 @55'
36" PRESTRESSED CONC. GIRDER
SKEW = 60 ELEV. = 41.04

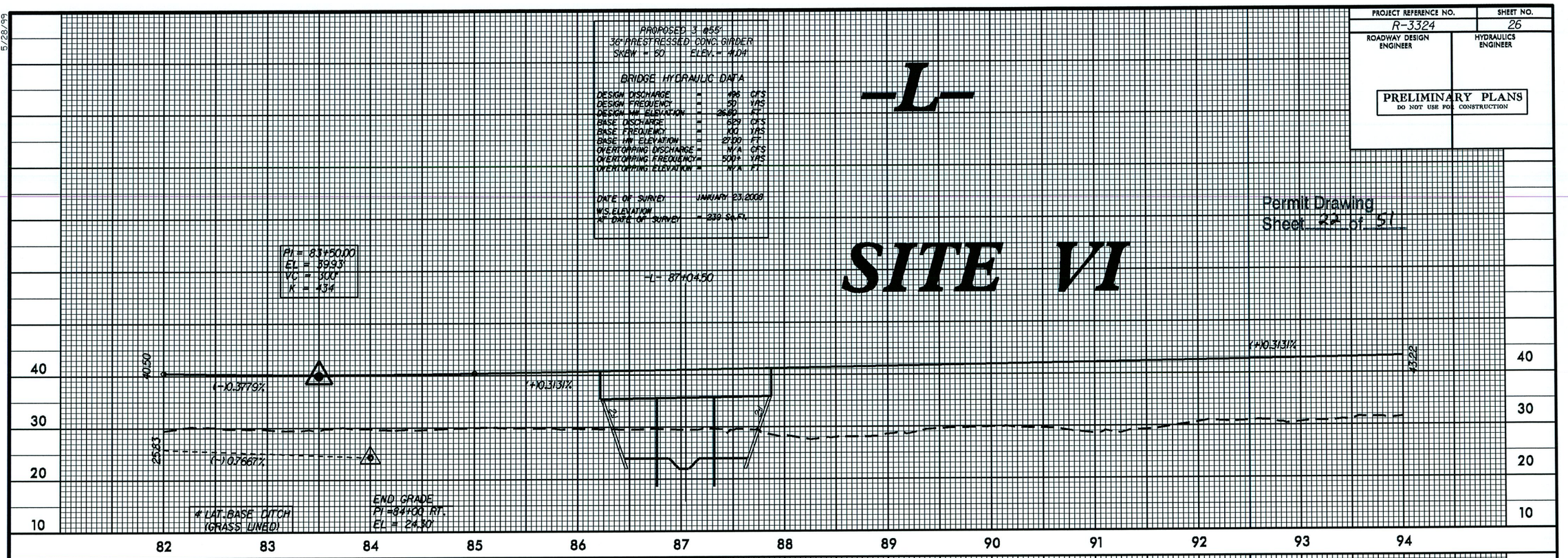
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	496	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	26.60	FT
BASE DISCHARGE	=	829	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	27.00	FT
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	N/A	FT

DATE OF SURVEY JANUARY 23, 2008
WS ELEVATION
AT DATE OF SURVEY = 23.9 SQ.FT.

PI = 83+50.00
EL = 39.93
VC = 900'
K = 434

-L- 87+04.50

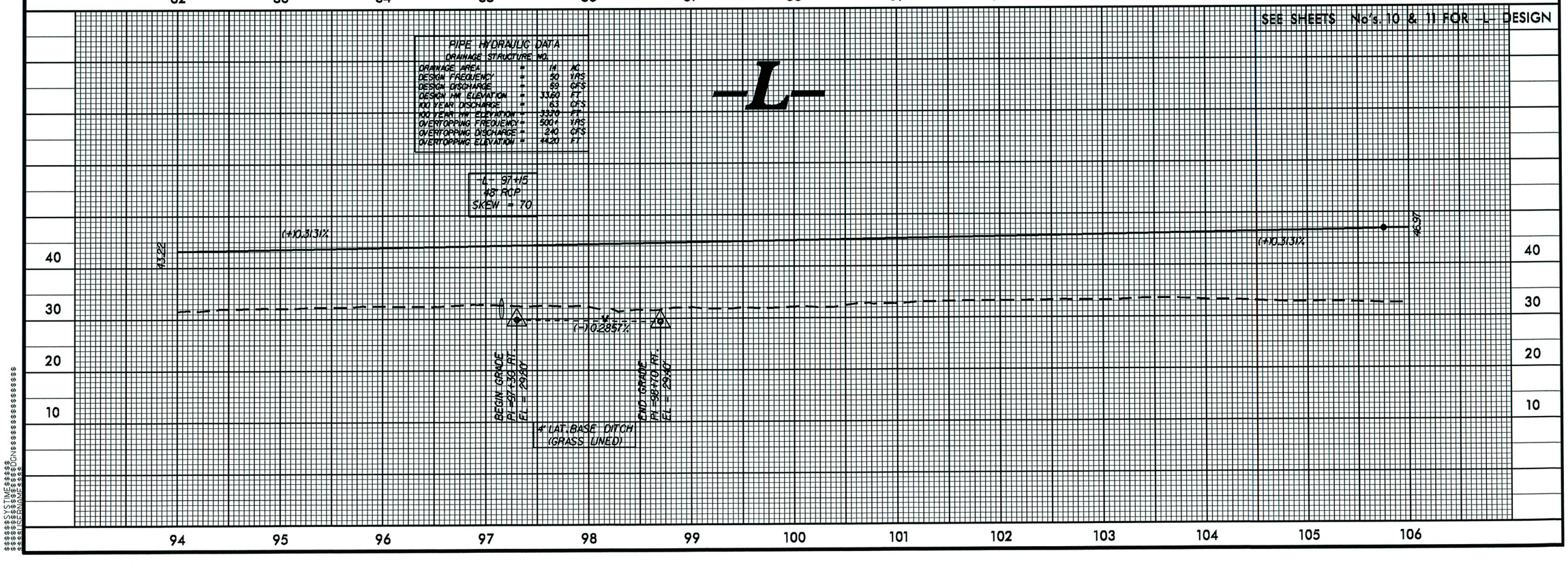


SEE SHEETS No's. 10 & 11 FOR -L- DESIGN

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	116	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	69	CFS
DESIGN HW ELEVATION	=	33.60	FT
100 YEAR DISCHARGE	=	83	CFS
100 YEAR HW ELEVATION	=	33.70	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	240	CFS
OVERTOPPING ELEVATION	=	44.20	FT

-L- 97+15
48" RCP
SKEW = 70



SYSTIME = 09:45
SYWIN = 6.00
SYNAME = C:\PROJECT\DESIGN

PROJECT REFERENCE NO.	SHEET NO.
R-3324	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

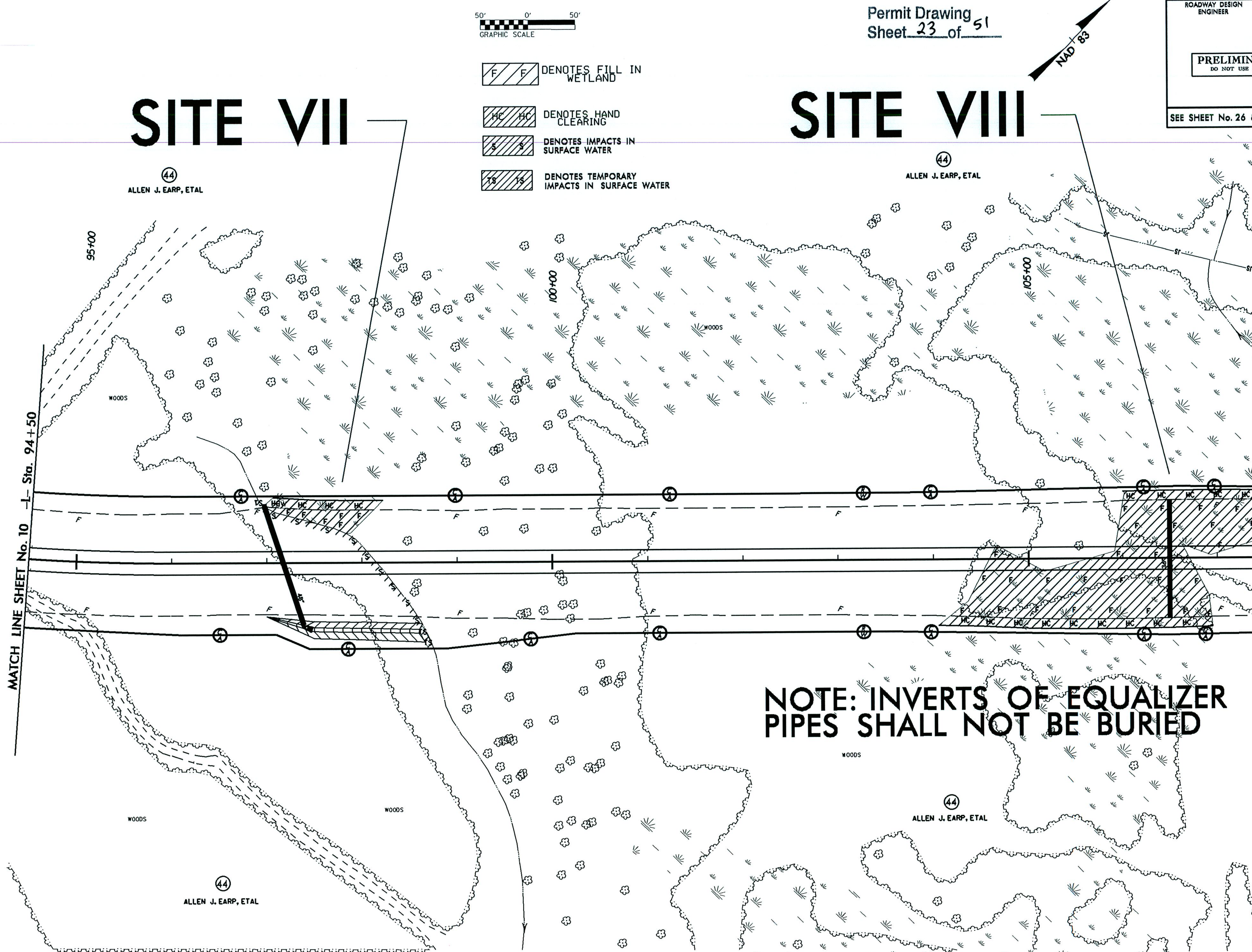
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 26 & 27 FOR -L- PROFILE

Permit Drawing
Sheet 23 of 51

SITE VII

SITE VIII



NOTE: INVERTS OF EQUALIZER PIPES SHALL NOT BE BURIED

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 26 & 27 FOR -L- PROFILE

Permit Drawing
Sheet 24 of 51

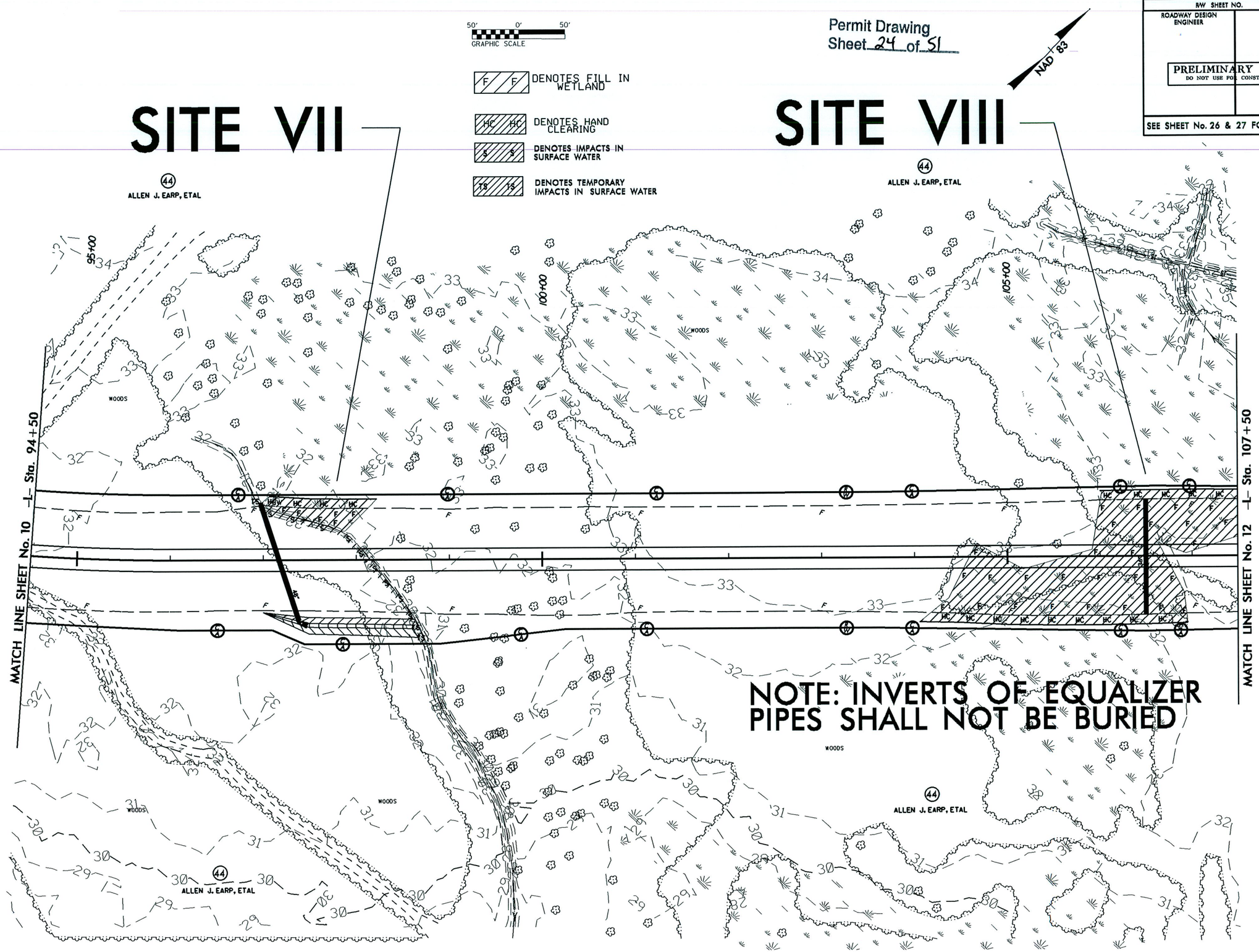
50' 0' 50'
GRAPHIC SCALE

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

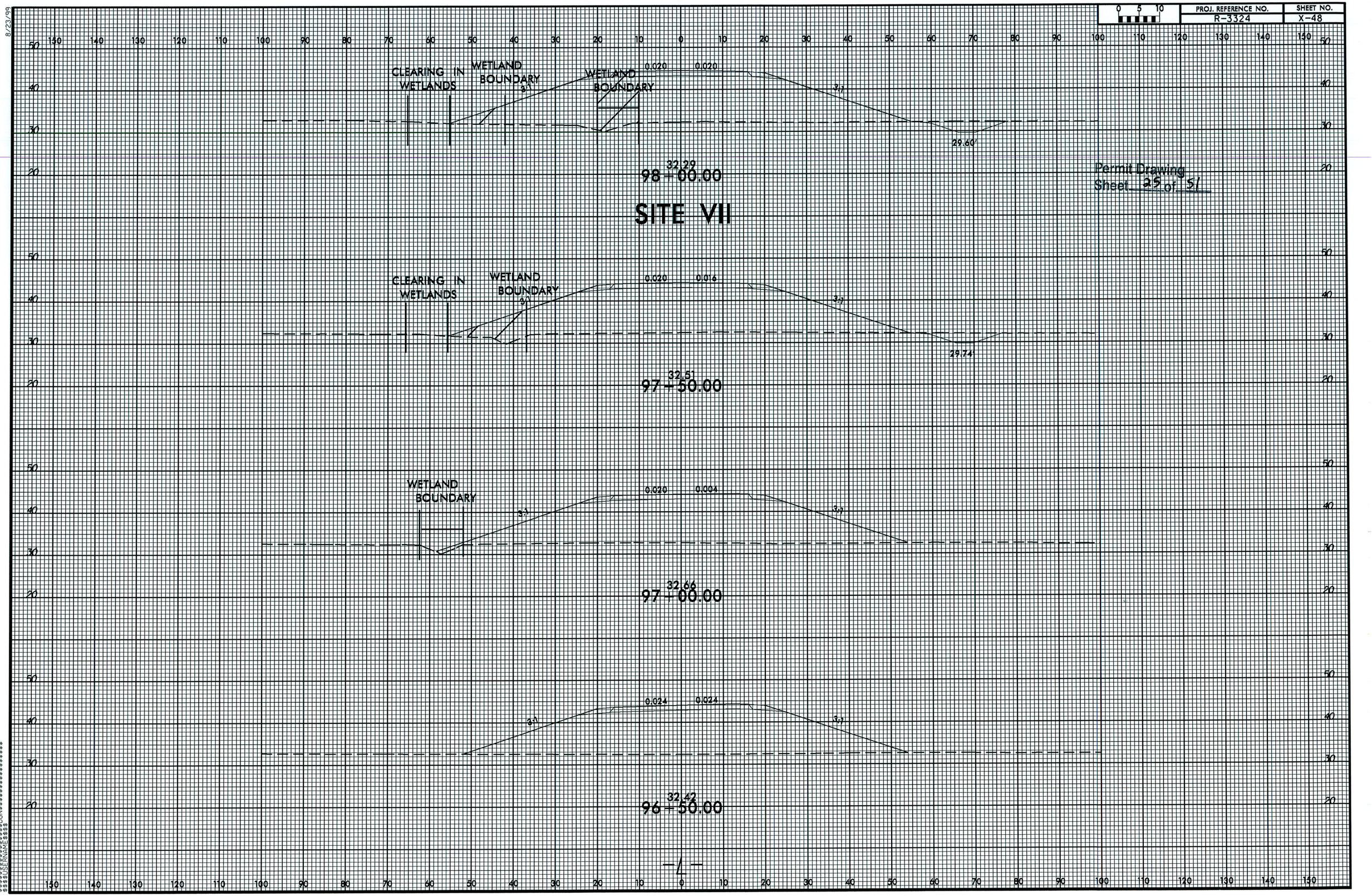
S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



8/17/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3324	X-48



Permit Drawing
Sheet 25 of 51

8/23/99

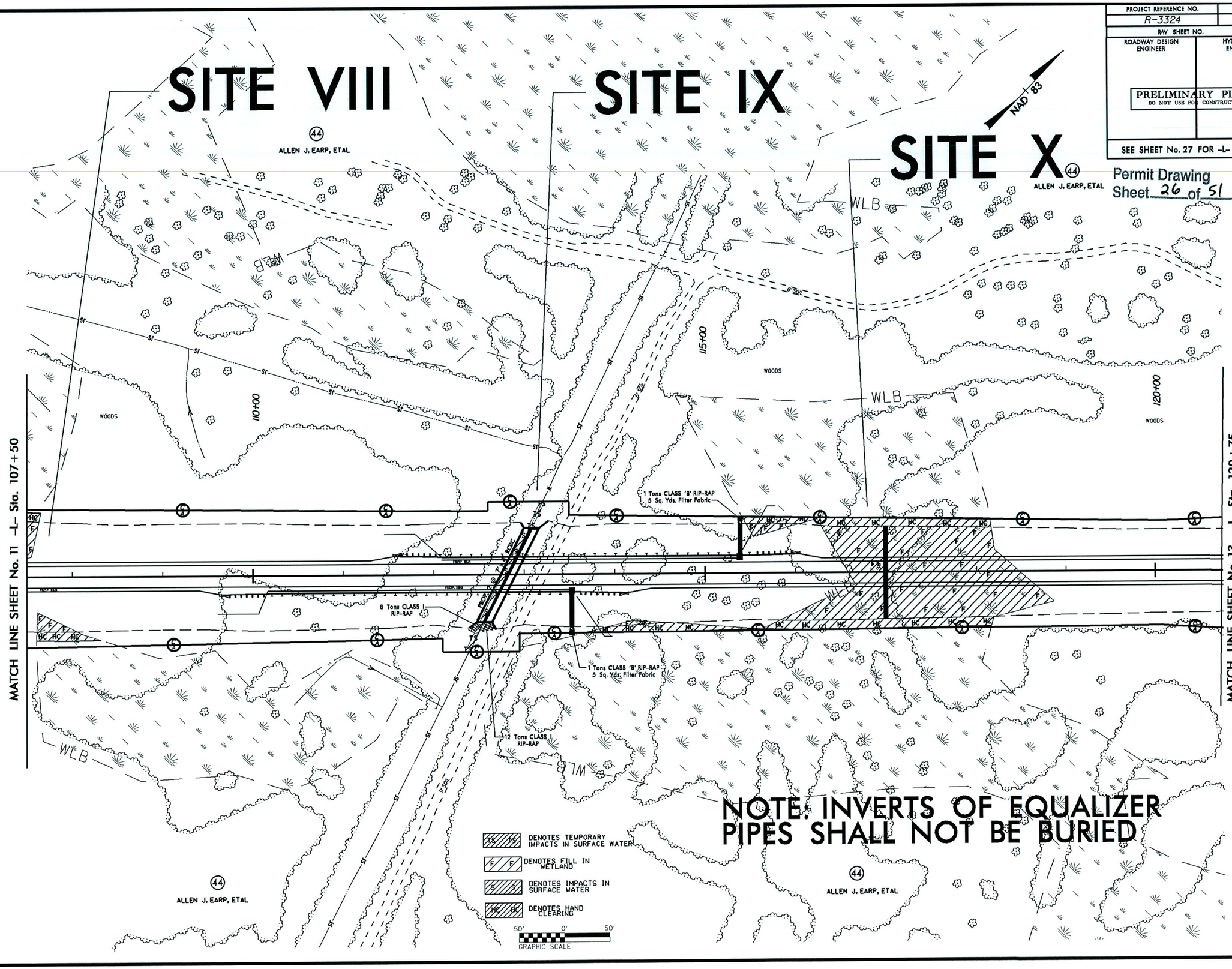
$$$$SYSTIME$$$$
$$$$DGNNAME$$$$
$$$$DRNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3324	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

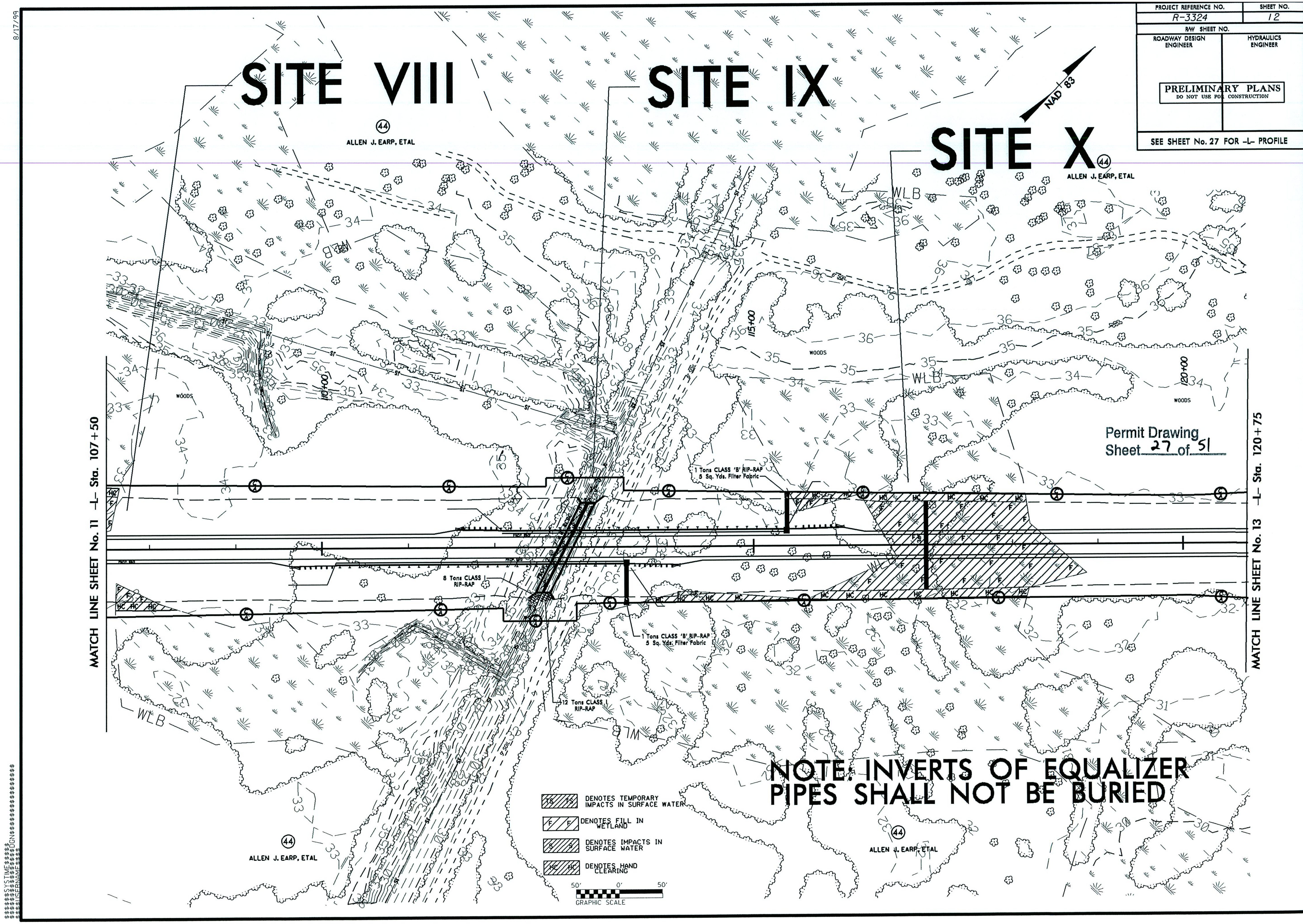
SEE SHEET No. 27 FOR -L- PROFILE

Permit Drawing
Sheet 26 of 51



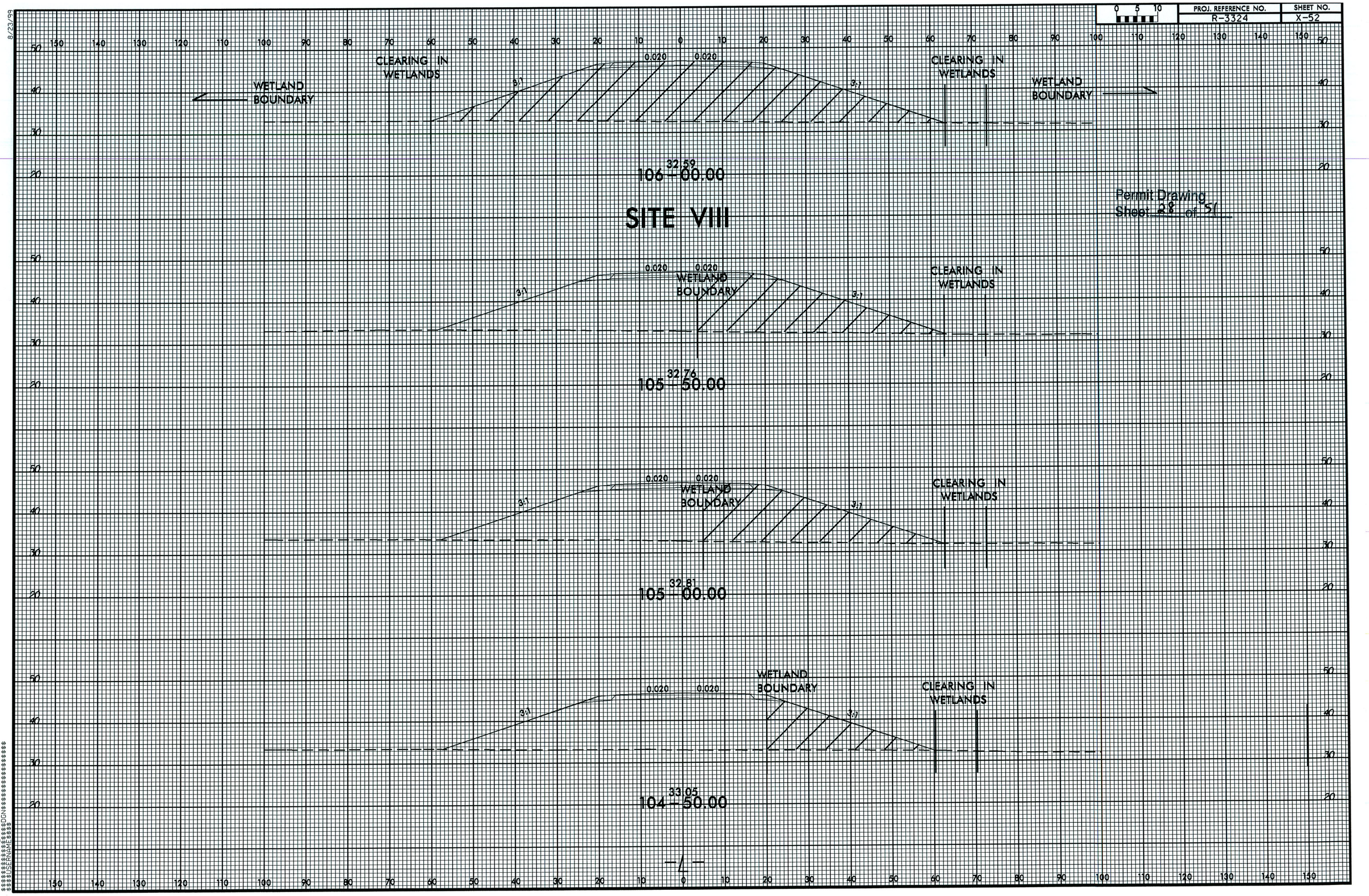
NOTE: INVERTS OF EQUALIZER PIPES SHALL NOT BE BURIED

8/17/99


PROJECT REFERENCE NO.
R-3324
SHEET NO.
12
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SEE SHEET No. 27 FOR -L- PROFILE
SITE VIII
SITE IX
SITE X
NAD 83
ALLEN J. EARP, ETAL
WOODS
Permit Drawing
Sheet 27 of 51
MATCH LINE SHEET No. 11 -L- Sta. 107+50
MATCH LINE SHEET No. 13 -L- Sta. 120+75
1 Tons CLASS 'B' RIP-RAP
5 Sq. Yds. Filter Fabric
8 Tons CLASS I RIP-RAP
12 Tons CLASS I RIP-RAP
NOTE: INVERTS OF EQUALIZER PIPES SHALL NOT BE BURIED
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
GRAPHIC SCALE
8/17/99

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3324	X-52



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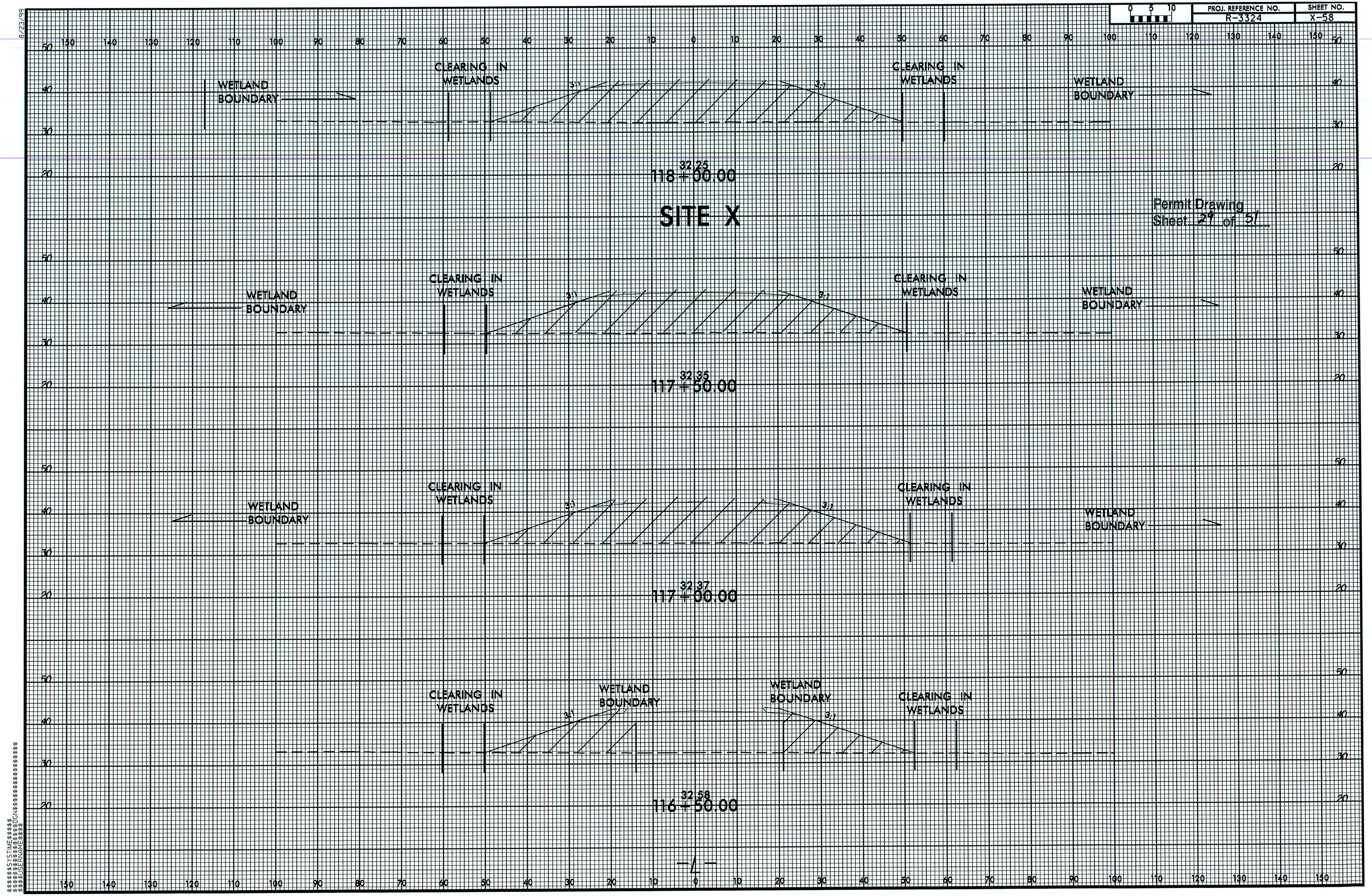
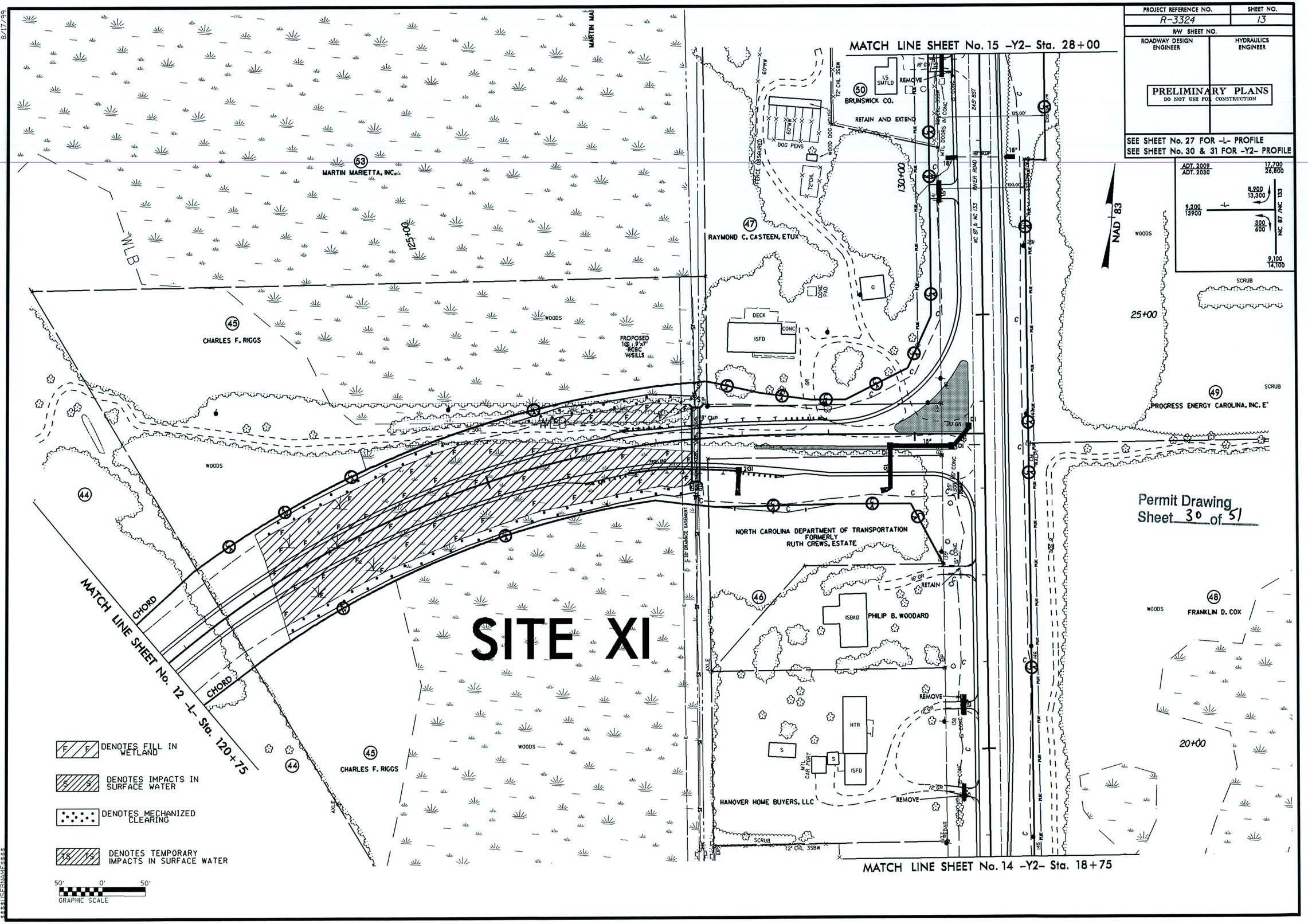
$$$$DGN$$$$
$$$$BEFNAME$$$$
$$$$SENAME$$$$


PROJ. REFERENCE NO.
R-3324
SHEET NO.
X-58
8/23/99
CLEARING IN WETLANDS
WETLAND BOUNDARY
3:1
118+00.00
32.25
SITE X
Permit Drawing
Sheet 29 of 51
117+50.00
32.35
117+00.00
32.37
116+50.00
32.58
-4-

PROJECT REFERENCE NO.	SHEET NO.
R-3324	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 27 FOR -L- PROFILE
SEE SHEET No. 30 & 31 FOR -Y2- PROFILE



8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 27 FOR -L- PROFILE
SEE SHEET No. 30 & 31 FOR -Y2- PROFILE

ADT. 2009 17,700
ADT. 2030 26,600

NC 87 /NC 133
9,200 / 13900
8,900 / 13,300
300 / 600
9,100 / 14,100

NAD 83

Permit Drawing
Sheet 31 of 51

MATCH LINE SHEET No. 15 -Y2- Sta. 28+00

MATCH LINE SHEET No. 12 -L- Sta. 120+75

MATCH LINE SHEET No. 14 -Y2- Sta. 18+75

SITE XI

(53) MARTIN MARIETTA, INC.

(45) CHARLES F. RIGGS

(47) RAYMOND C. CASTEEN, ETUX

(50) BRUNSWICK CO.

(49) PROGRESS ENERGY CAROLINA, INC. E

(48) FRANKLIN D. COX

(46) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION FORMERLY RUTH GREWS, ESTATE

(44)

PHILIP B. WOODARD

HANOVER HOME BUYERS, LLC

PROPOSED 10@9'x7' RCBC W/SILLS

RETAIN AND EXTEND

REMOVE

RETAIN

DOG PENS

ISFD

ISBKD

HTR

S

DECK

CONC

WOODS

SCRUB

NC 87 & NC 133 RIVER ROAD

MTL DOORS IN CONC

125+00

130+00

25+00

20+00

CHORD

CHORD

WLB

F/F DENOTES FILL IN WETLAND

S/S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

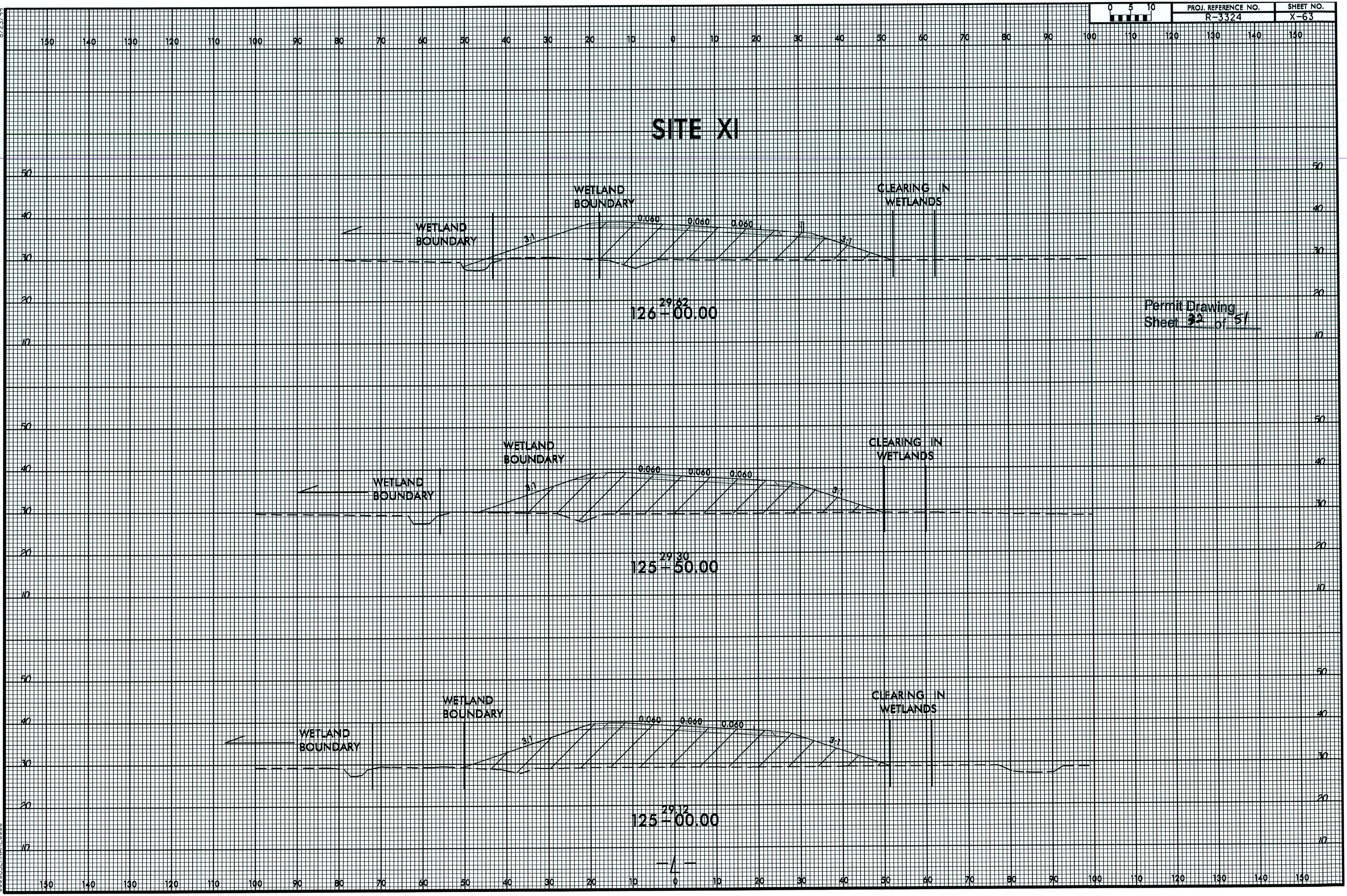
TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

50' 0' 50'
GRAPHIC SCALE

$$$$$SYSTIME$$$$
$$$$$DGN$$$$$
$$$$$FILENAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
R-3324	X-63

SITE XI



Permit Drawing
Sheet 32 of 51

PROJECT REFERENCE NO.	SHEET NO.
R-3324	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

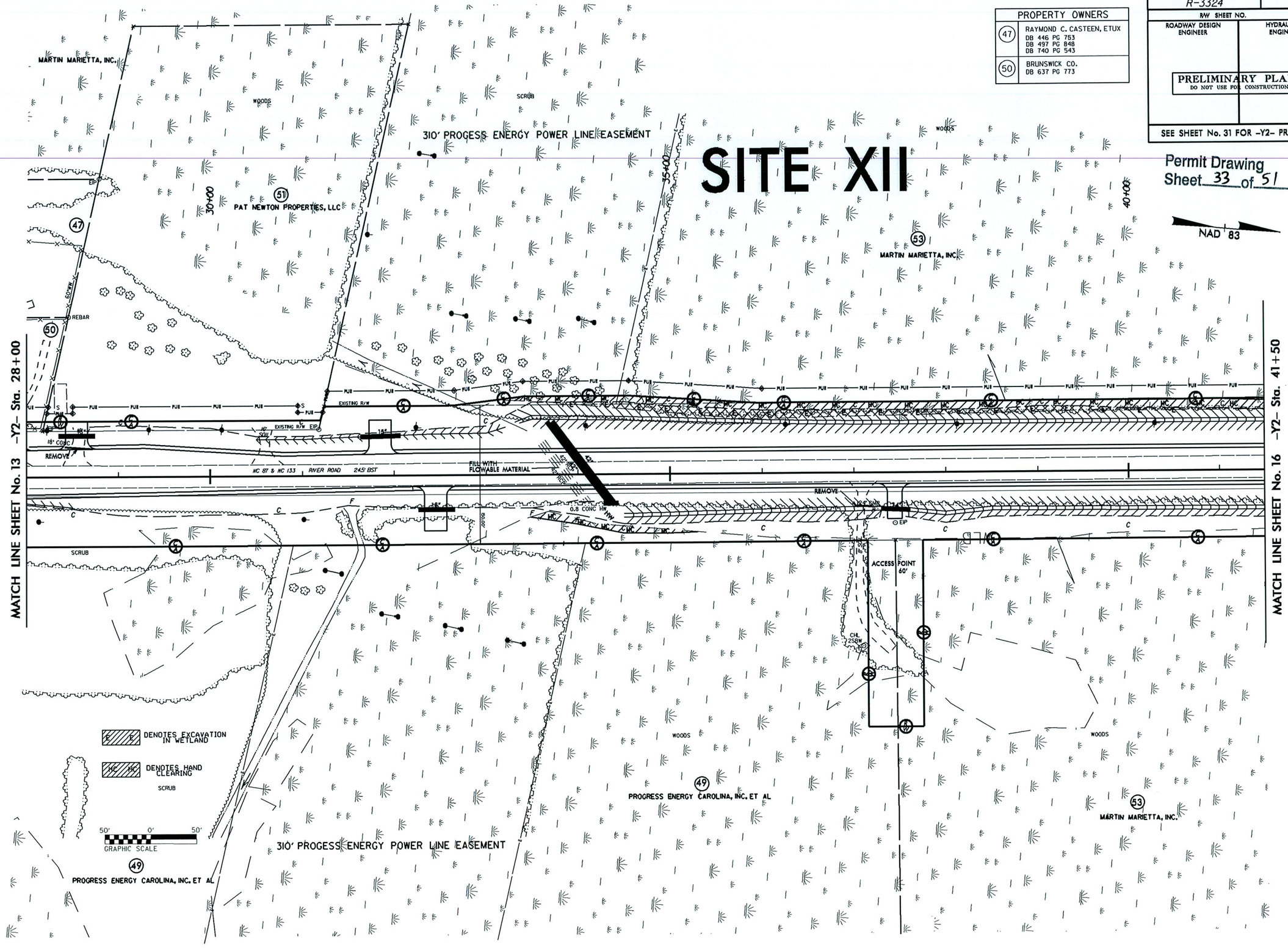
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 31 FOR -Y2- PROFILE

Permit Drawing
Sheet 33 of 51

PROPERTY OWNERS	
47	RAYMOND C. CASTEEN, ETUX DB 446 PG 753 DB 497 PG 848 DB 740 PG 543
50	BRUNSWICK CO. DB 637 PG 773

SITE XII



8/17/99

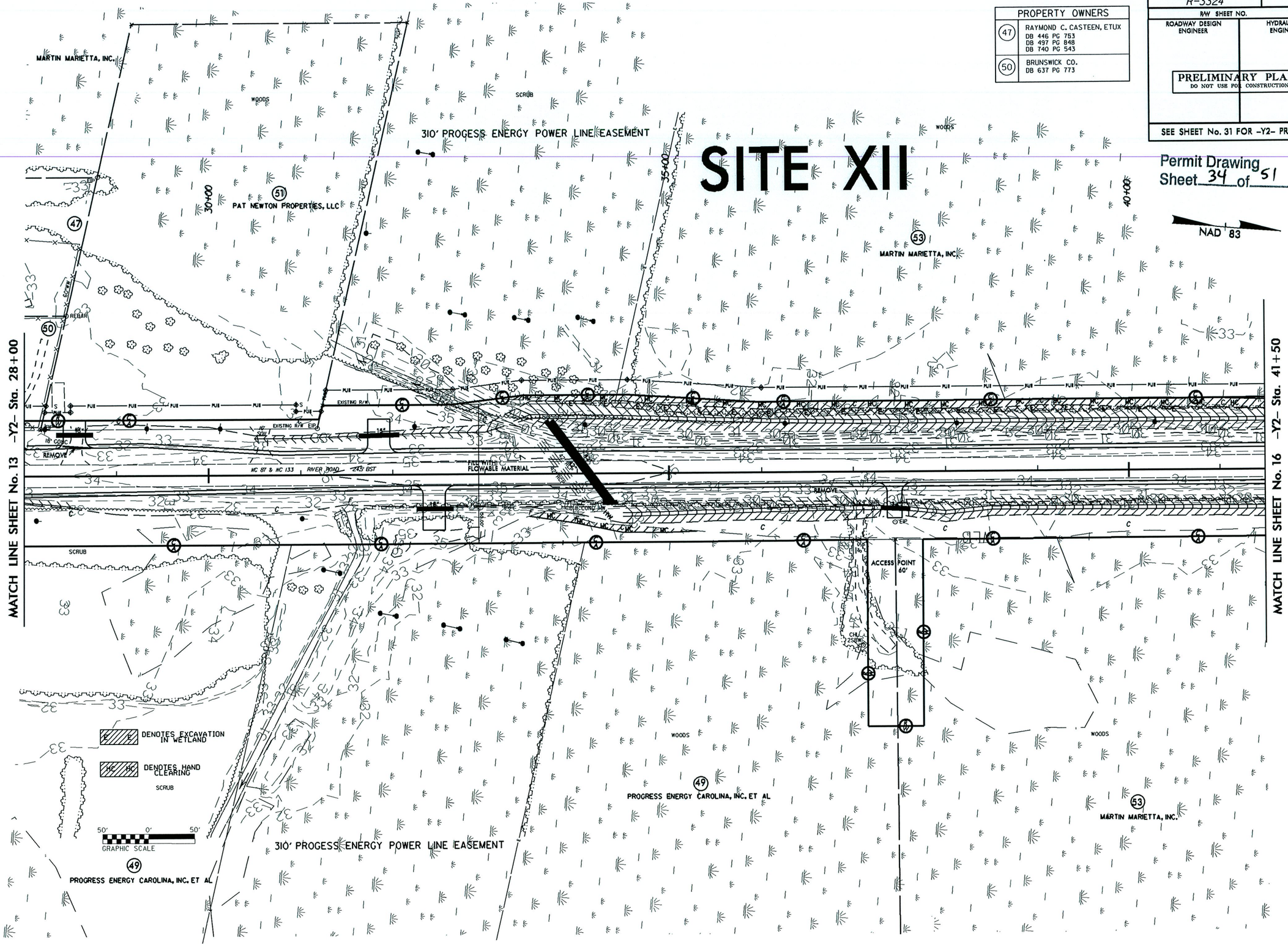
PROJECT REFERENCE NO.	SHEET NO.
R-3324	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 31 FOR -Y2- PROFILE

Permit Drawing
Sheet 34 of 51

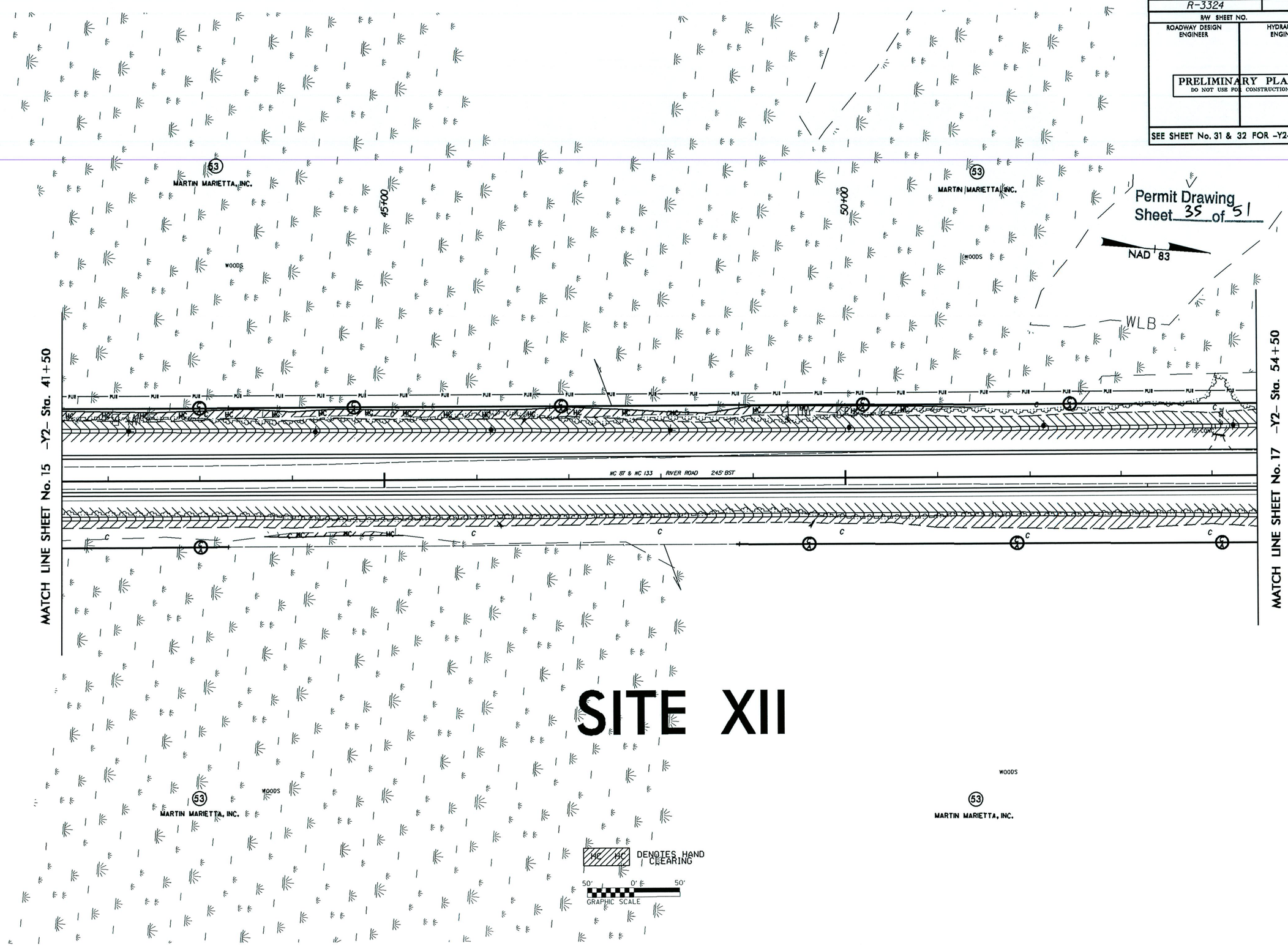
PROPERTY OWNERS	
47	RAYMOND C. CASTEEN, ETUX DB 446 PG 753 DB 497 PG 848 DB 740 PG 543
50	BRUNSWICK CO. DB 637 PG 773



PROJECT REFERENCE NO.	SHEET NO.
R-3324	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 31 & 32 FOR -Y2- PROFILE



SITE XII

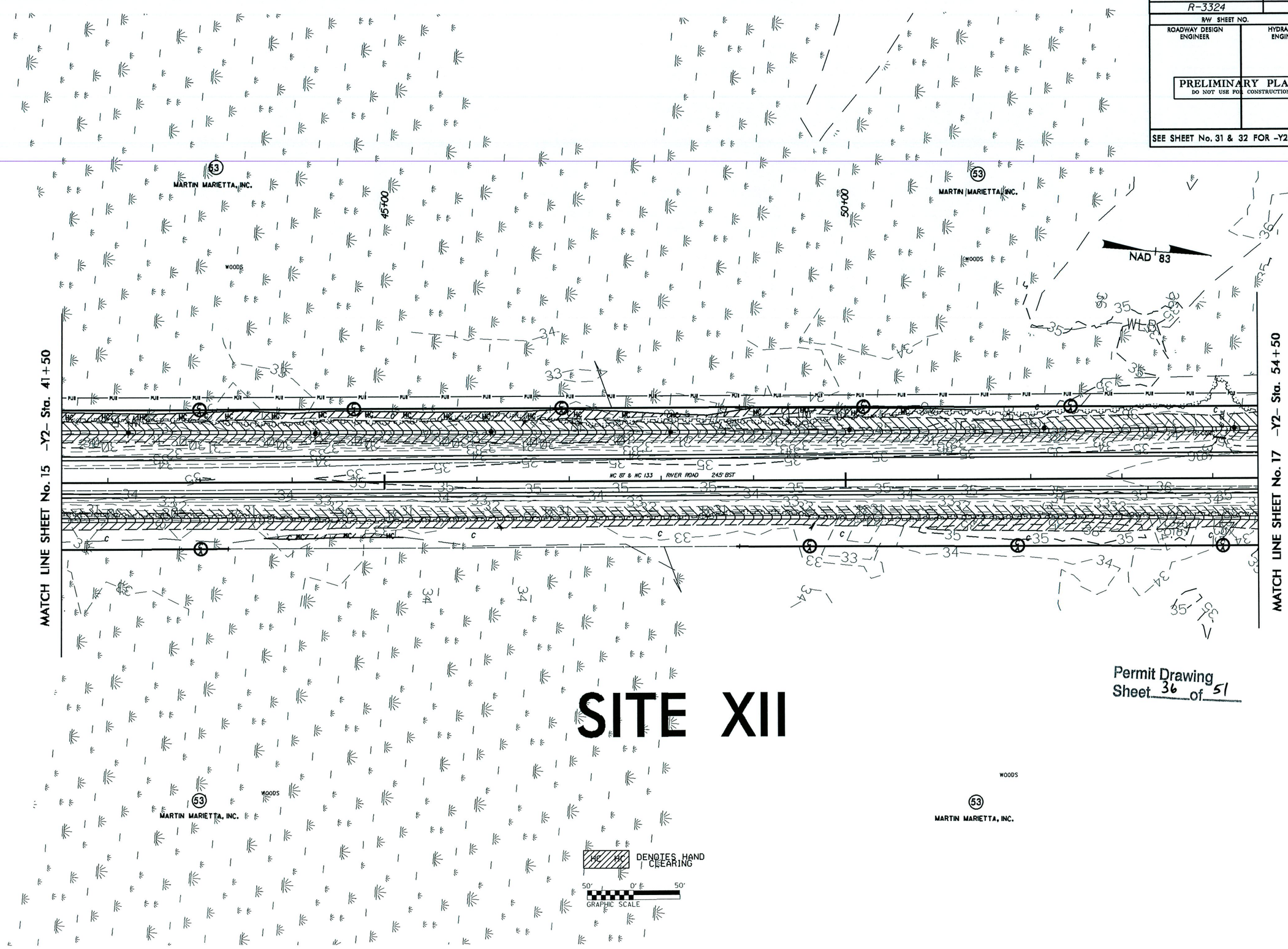
8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 31 & 32 FOR -Y2- PROFILE



SITE XII

Permit Drawing
Sheet 36 of 51

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3324	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

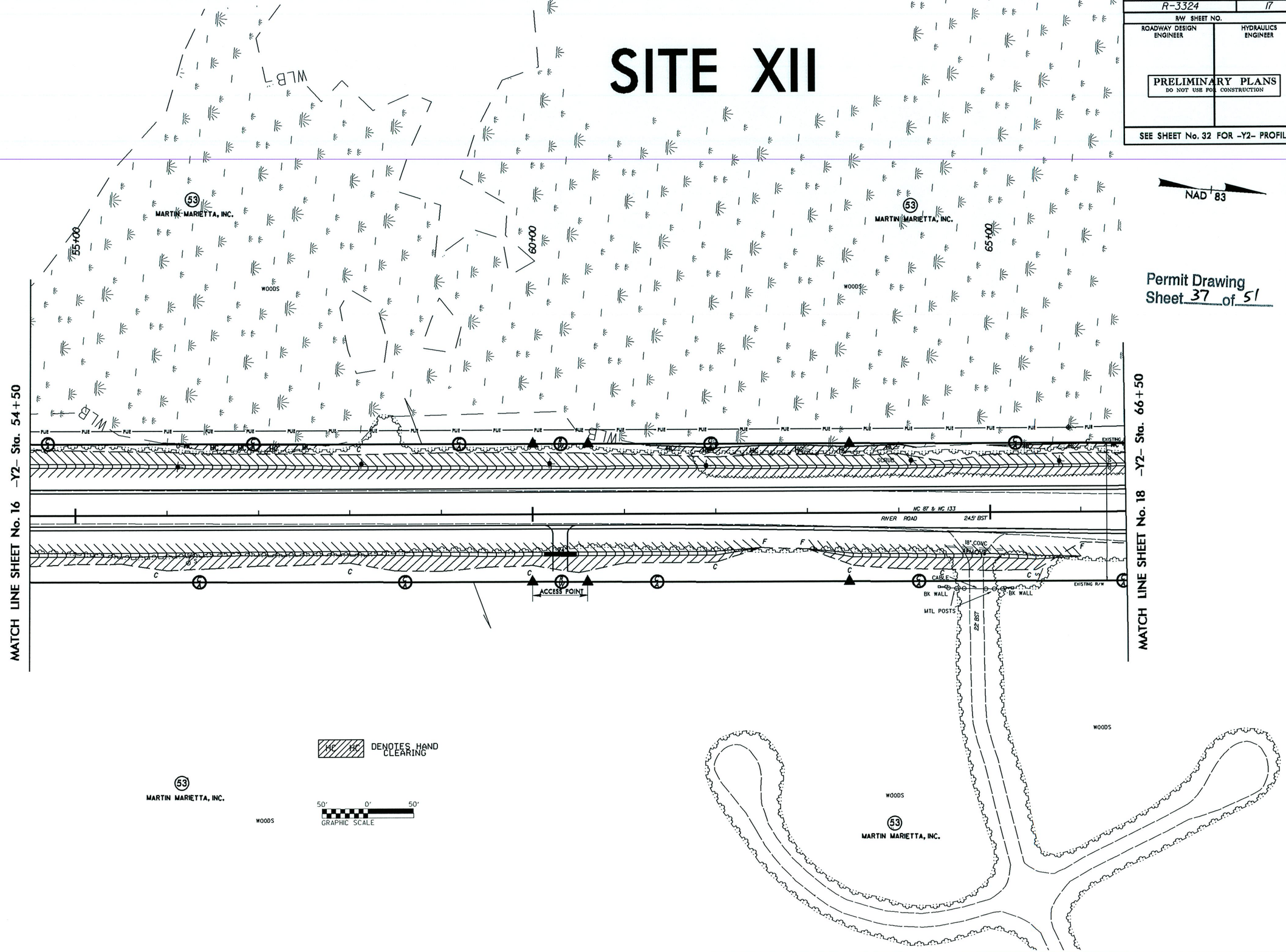
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 32 FOR -Y2- PROFILE

SITE XII

NAD 83

Permit Drawing
Sheet 37 of 51



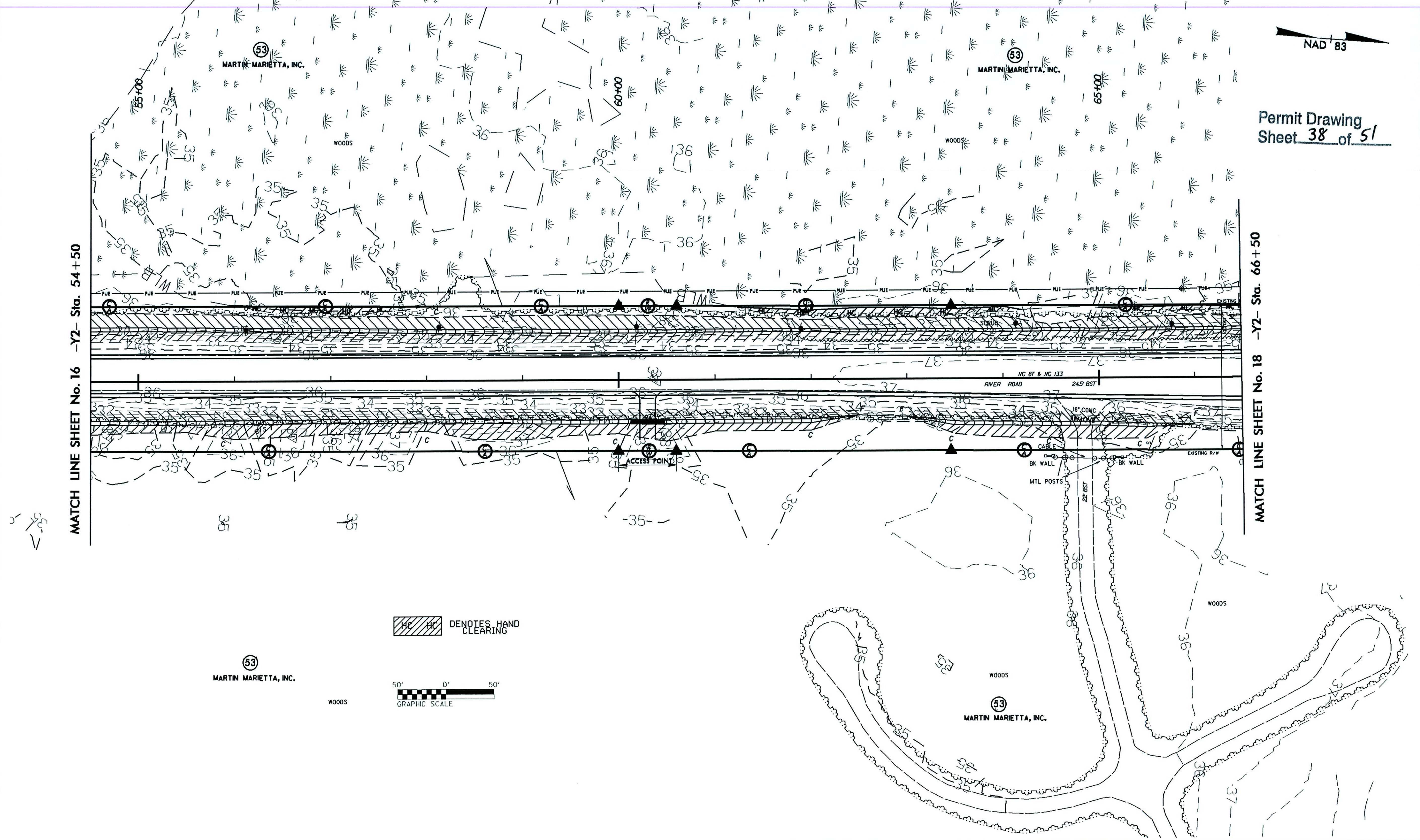
PROJECT REFERENCE NO.	SHEET NO.
R-3324	17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 32 FOR -Y2- PROFILE

SITE XII

Permit Drawing
Sheet 38 of 51

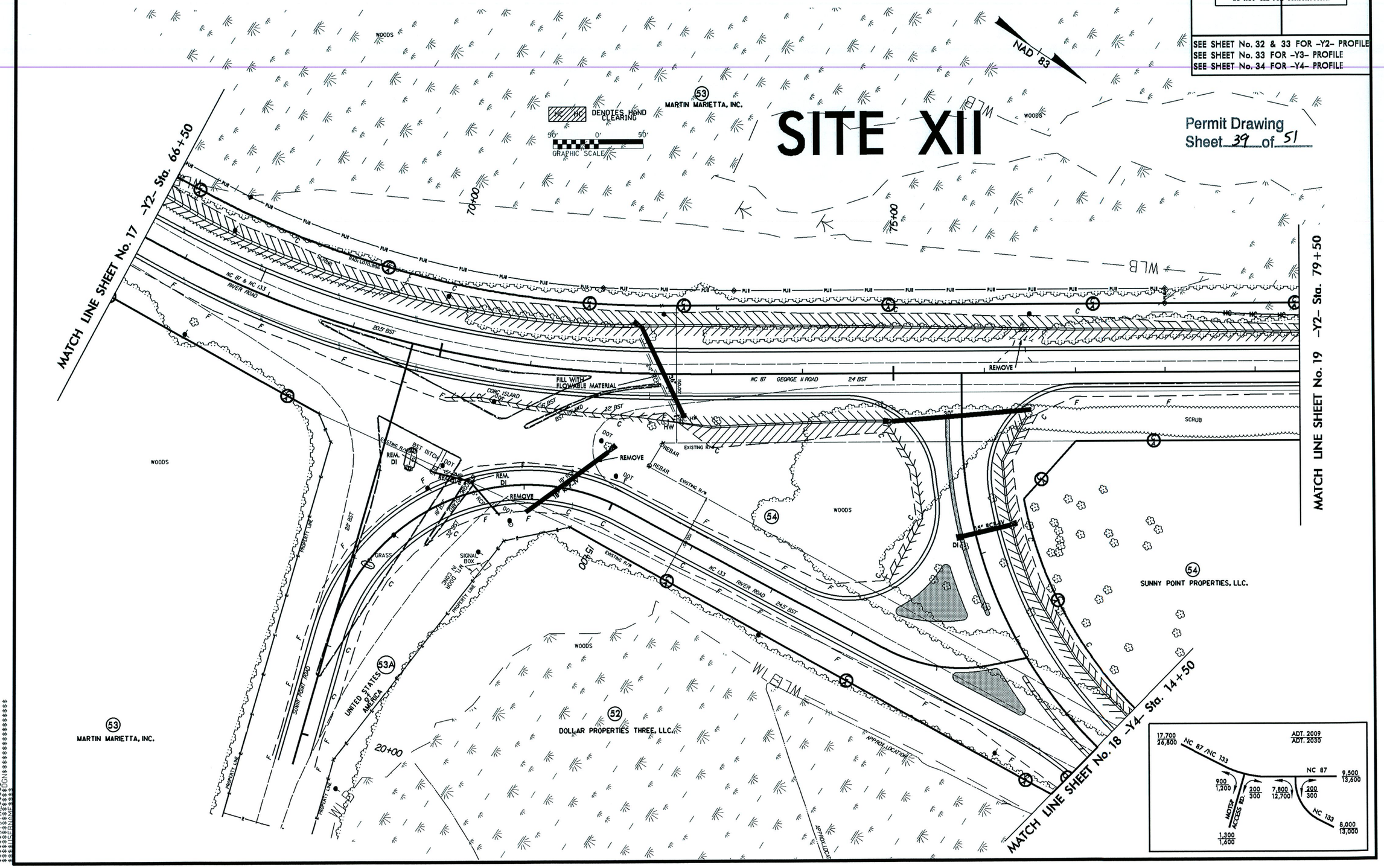


8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 32 & 33 FOR -Y2- PROFILE
SEE SHEET No. 33 FOR -Y3- PROFILE
SEE SHEET No. 34 FOR -Y4- PROFILE

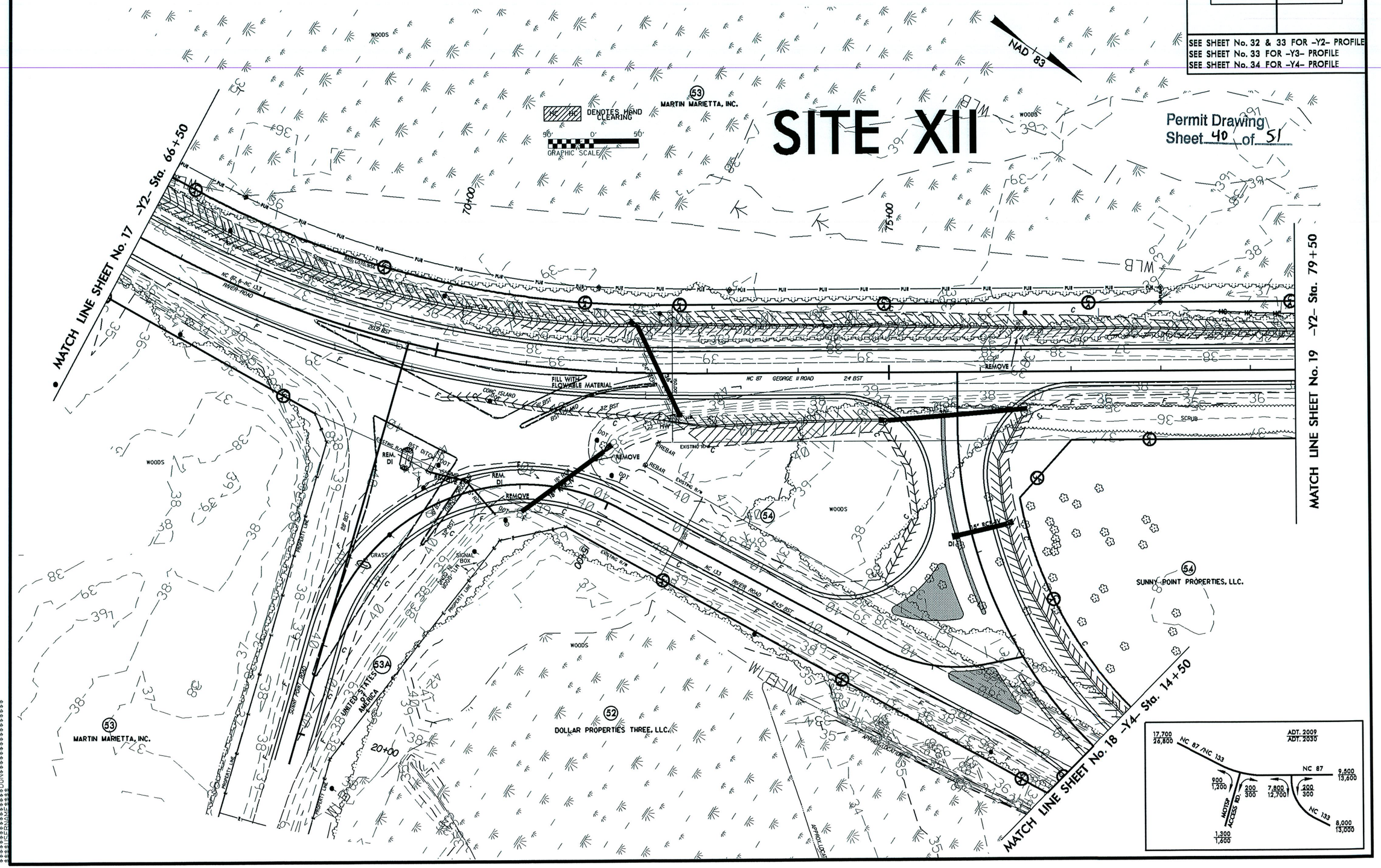


8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3324	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 32 & 33 FOR -Y2- PROFILE
SEE SHEET No. 33 FOR -Y3- PROFILE
SEE SHEET No. 34 FOR -Y4- PROFILE



8/23/99

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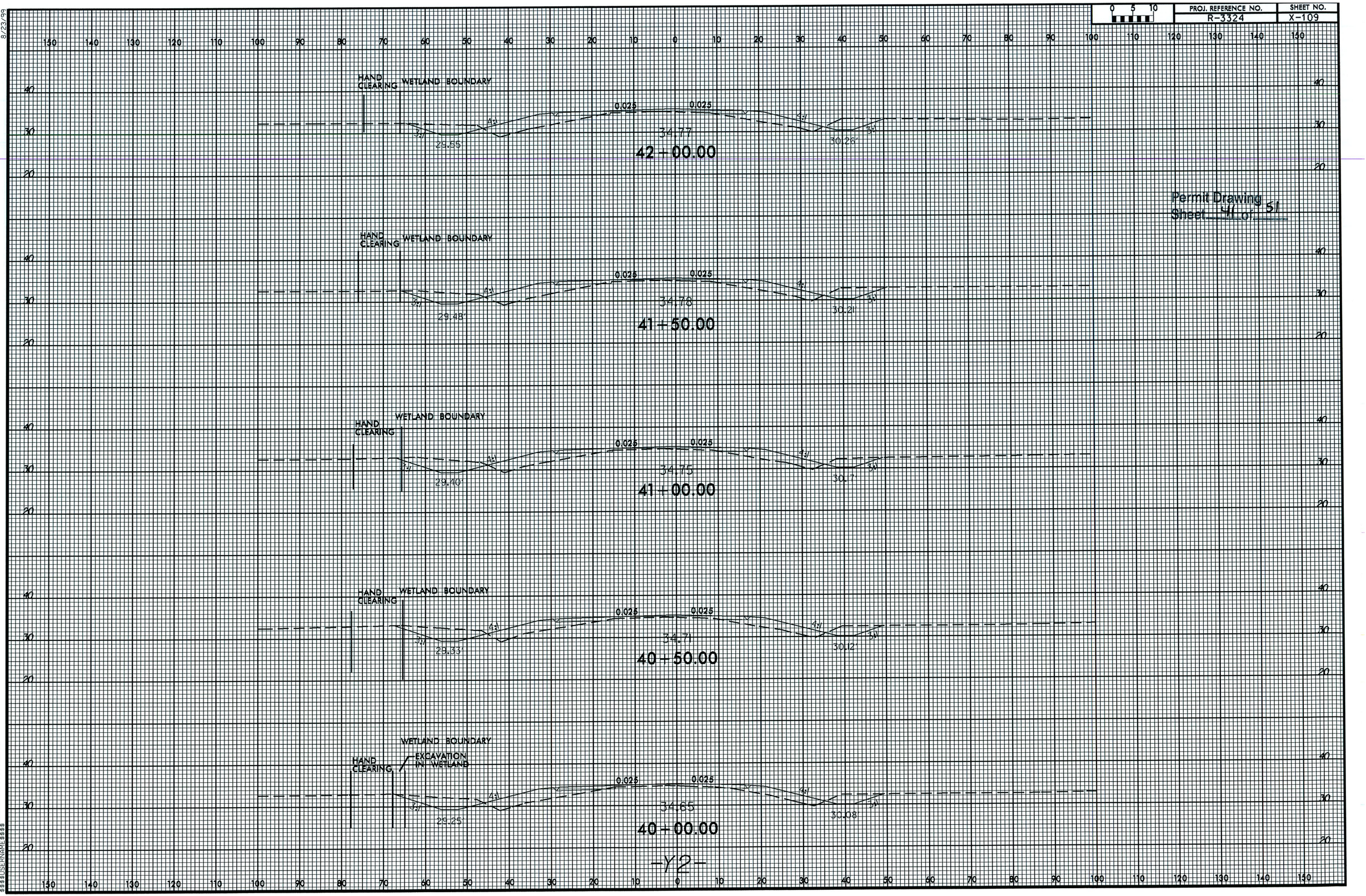
	R-3324	X-109



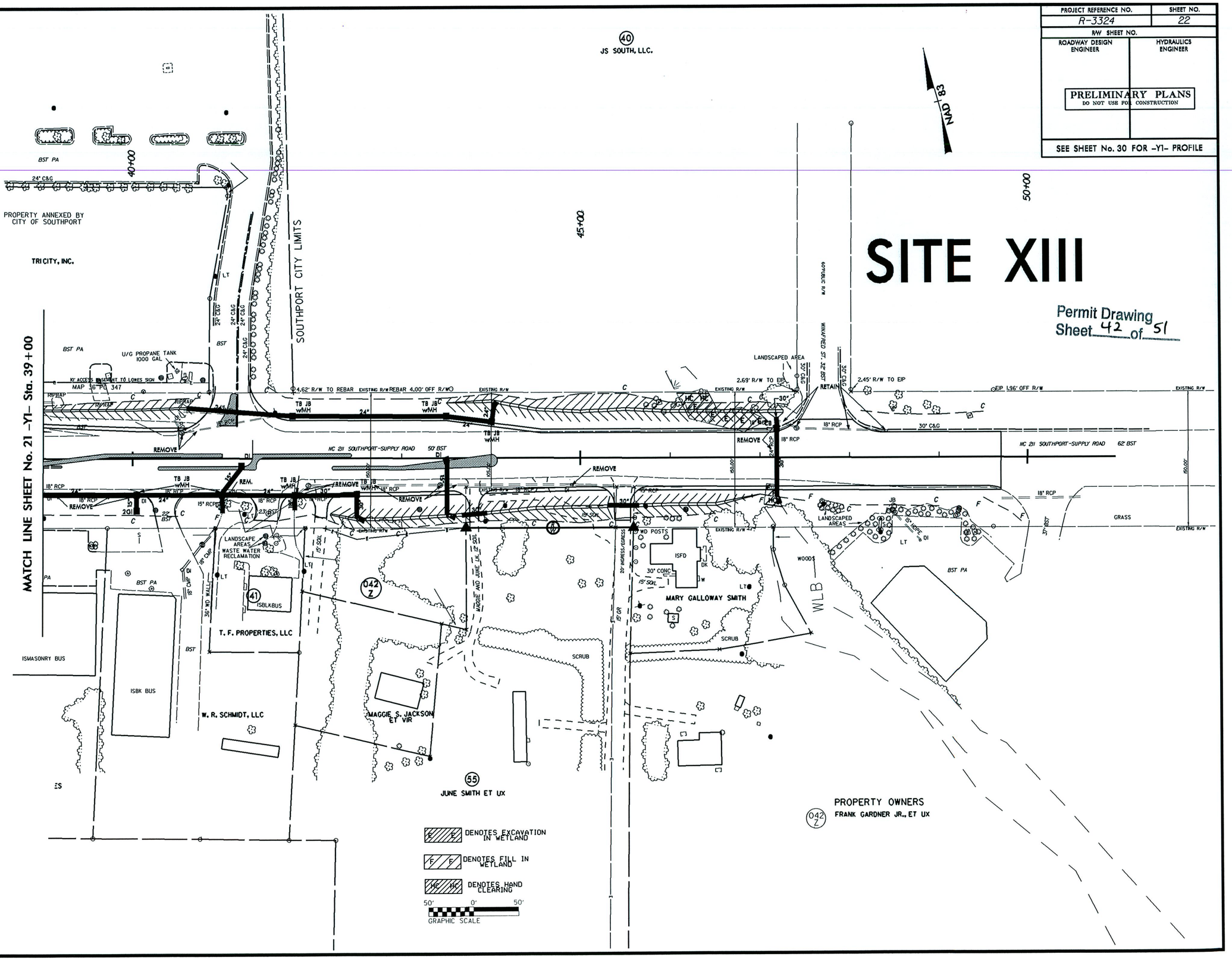
Permit Drawing
Sheet 41 of 51

SYSTIME$$$$$
SYSDOW$$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3324	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 30 FOR -Y1- PROFILE

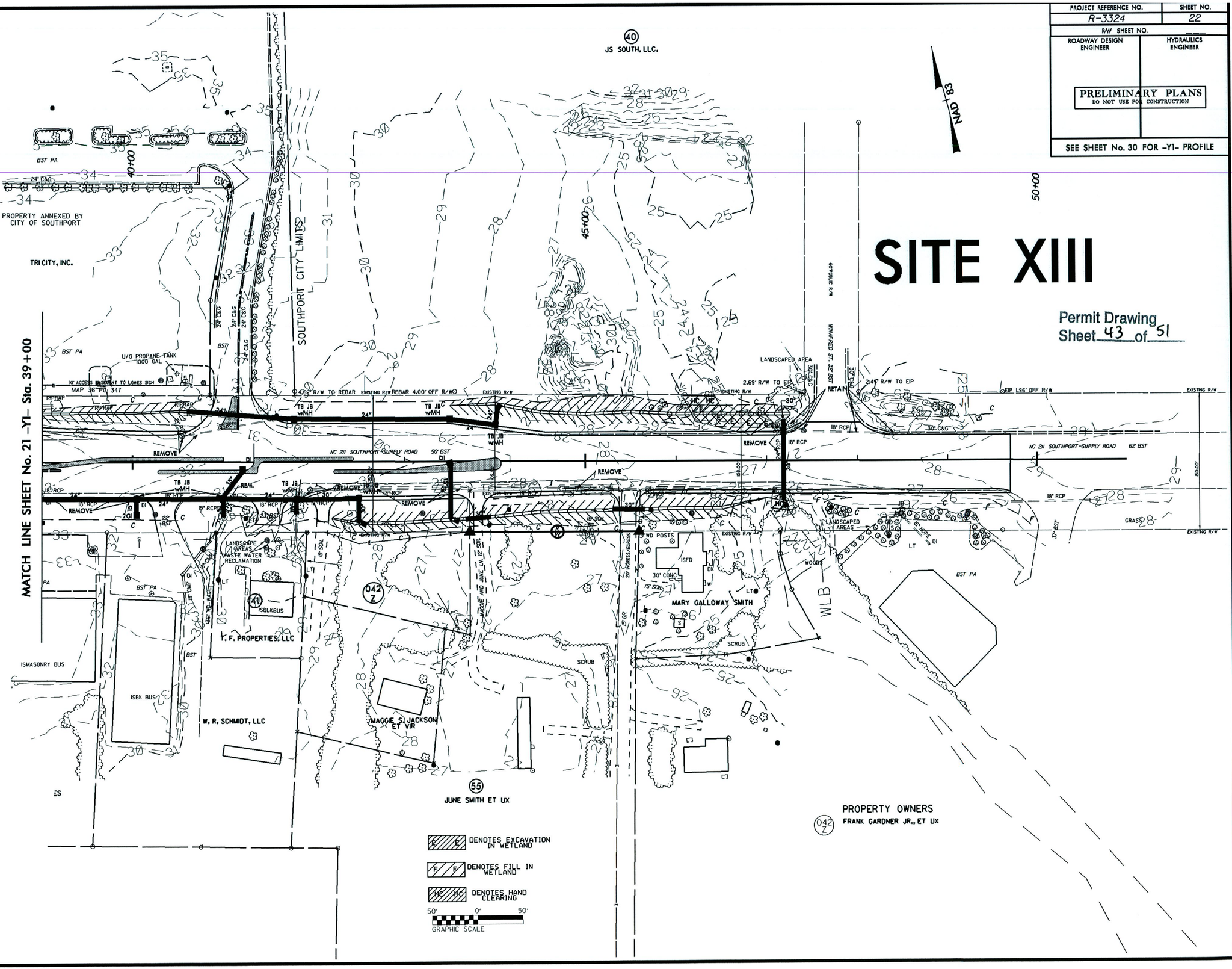


8/17/99

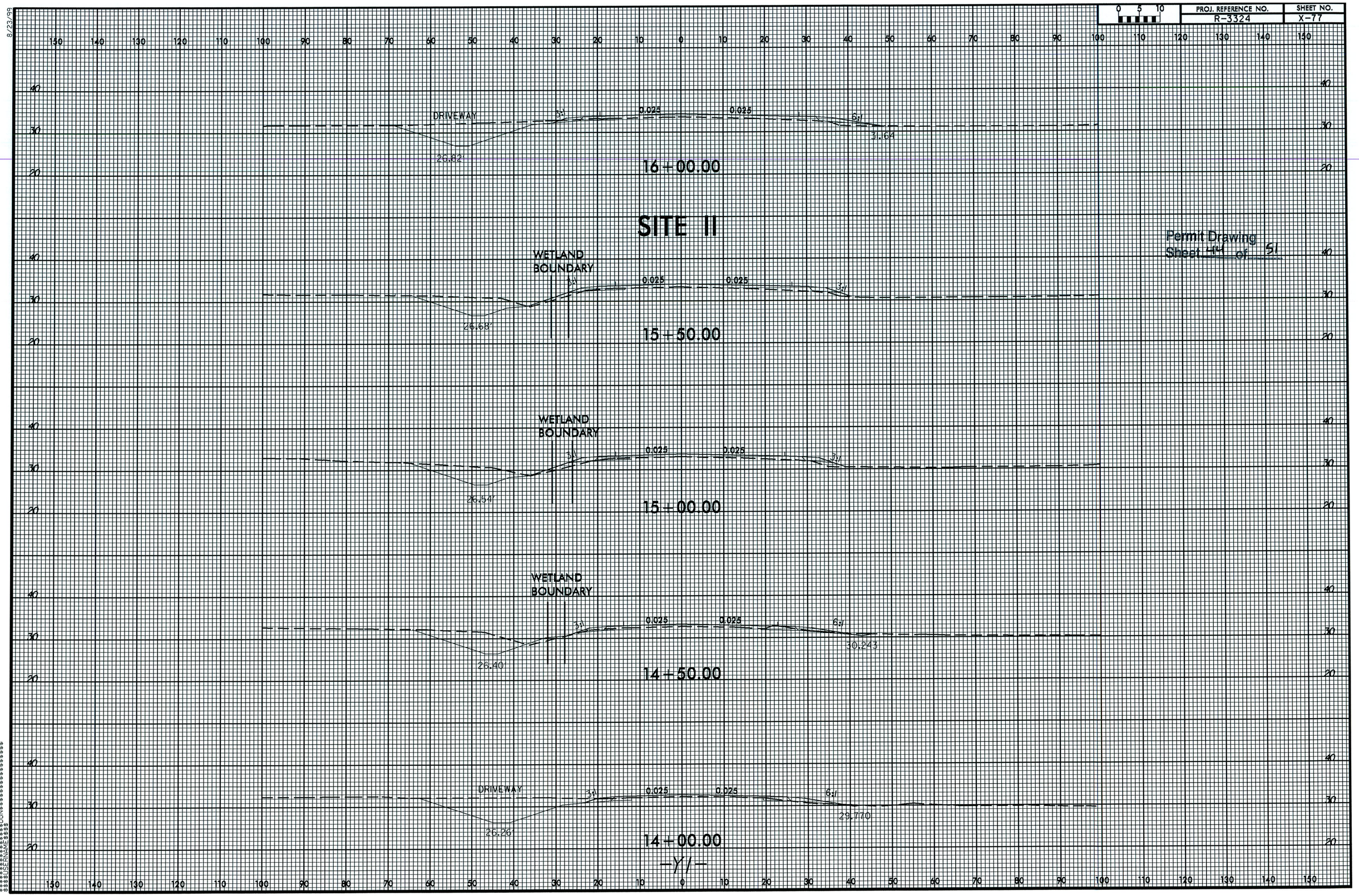
PROJECT REFERENCE NO.	SHEET NO.
R-3324	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET No. 30 FOR -Y1- PROFILE



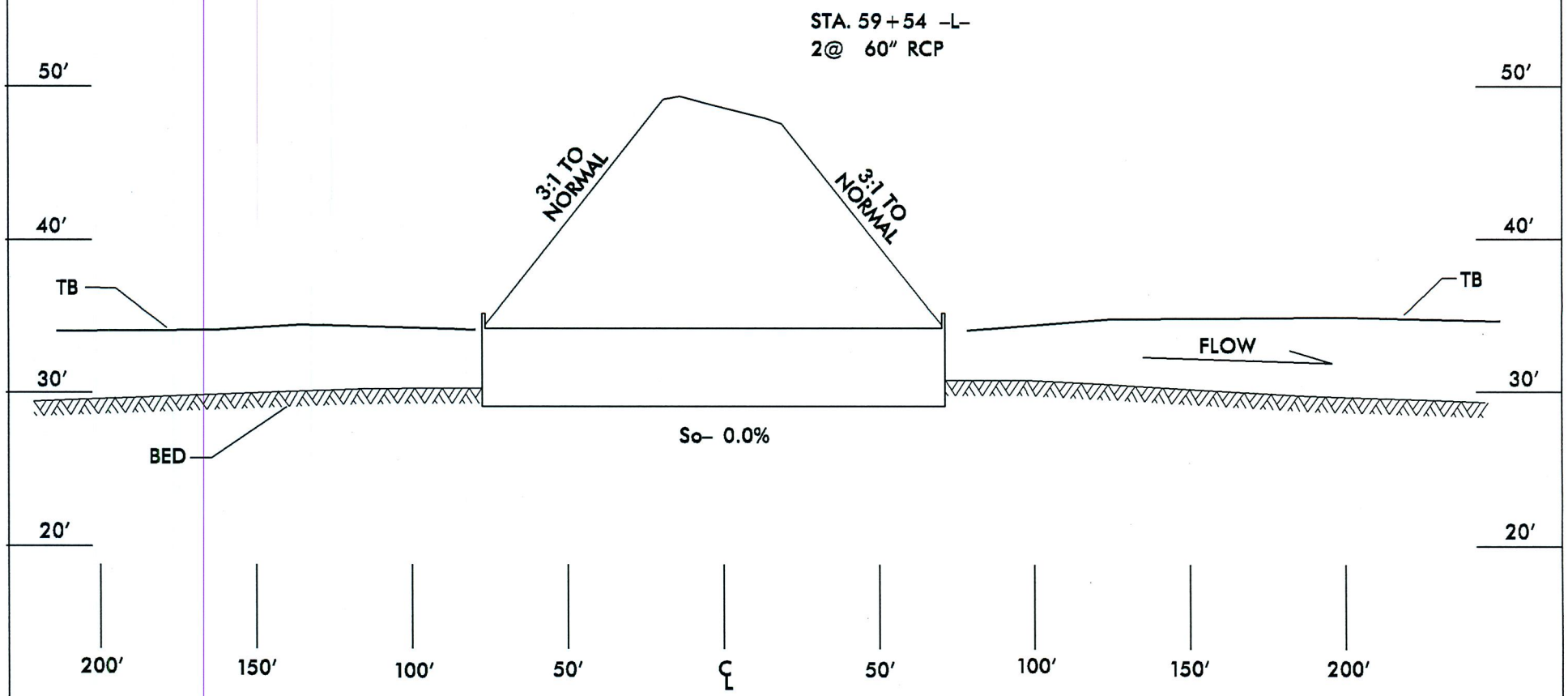
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3324	X-77



Permit Drawing
Sheet 44 of 51

8/23/99

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$



PROFILE

SITE IV

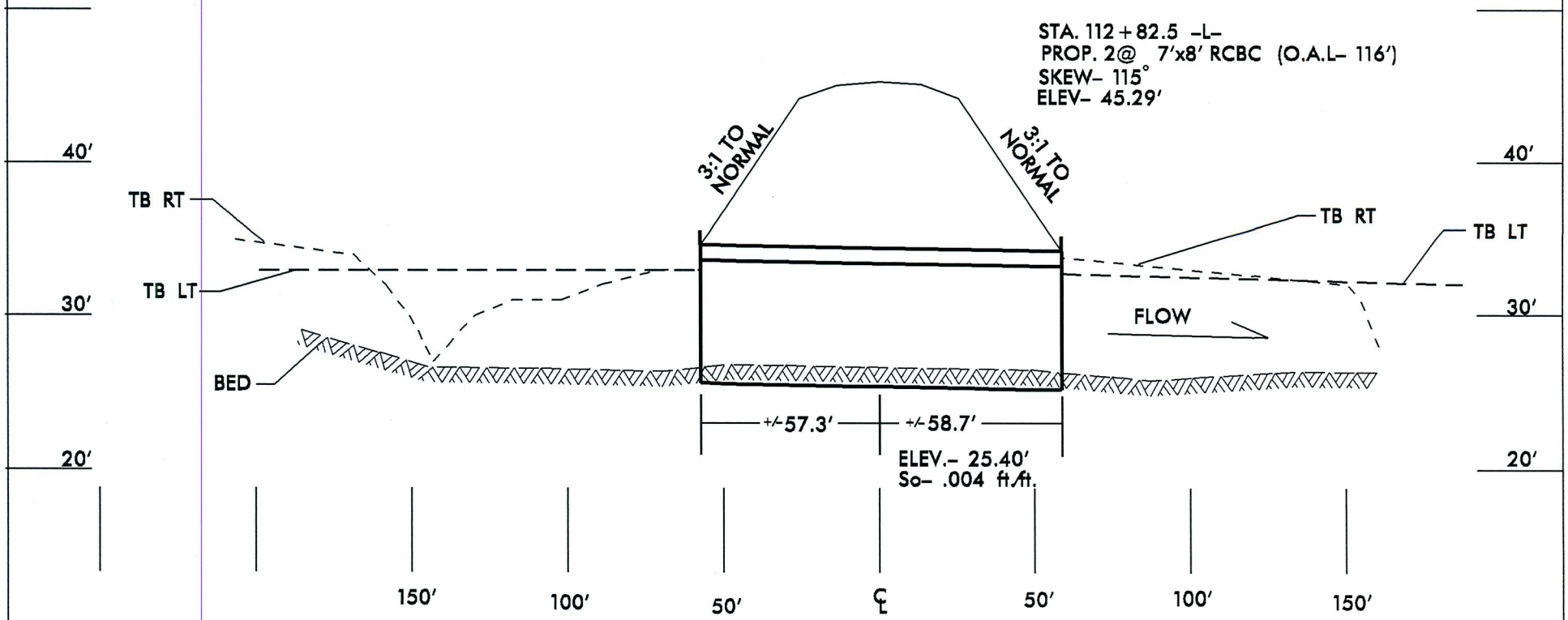
Permit Drawing
Sheet 45 of 51

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 34531.1.1(R-3324)

NEW ROUTE FROM NC 133
TO NC 133 AND NC 87

SHEET OF



PROFILE
SITE IX

Permit Drawing
Sheet 46 of 51

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 34531.1.1(R-3324)

NEW ROUTE FROM NC 133
TO NC 133 AND NC 87

SHEET OF

SKEWED MULTI–BARREL LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN

(NOT TO SCALE)

*NOTES:

1) BED MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADATION SIZE SIMILAR TO THAT OF CLASS 'B' RIP RAP. STONES LARGER THAN 6 INCHES SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL. BED MATERIALS SUBJECT TO APPROVAL BY THE ENGINEER.

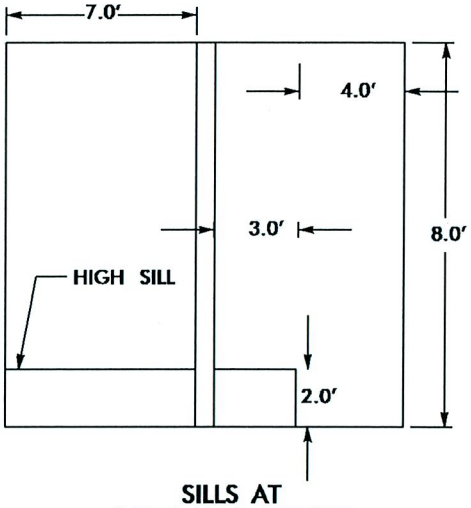
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

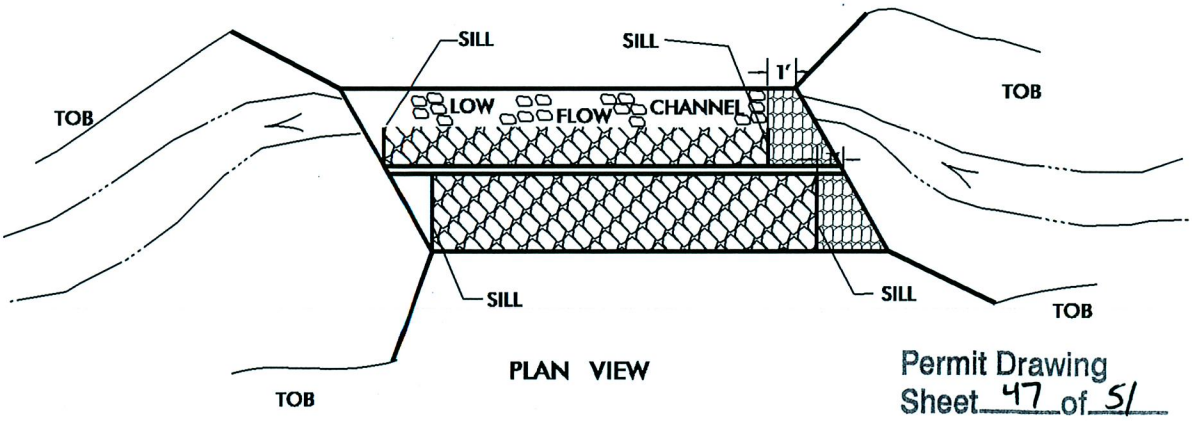
4) CLASS 'B' RIP RAP MAY BE USED TO SUPPLEMENT NATURAL BED MATERIAL.

5) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.

6) NUMBER OF SILL DETERMINED BY THE ENGINEER.



SILLS AT INLET AND OUTLET



PLAN VIEW

Permit Drawing
Sheet 47 of 51

PLAN VIEW

SITE IX

–L– STA. 112 + 82.5

2@ 7' x 8' RCBC

NCDOT

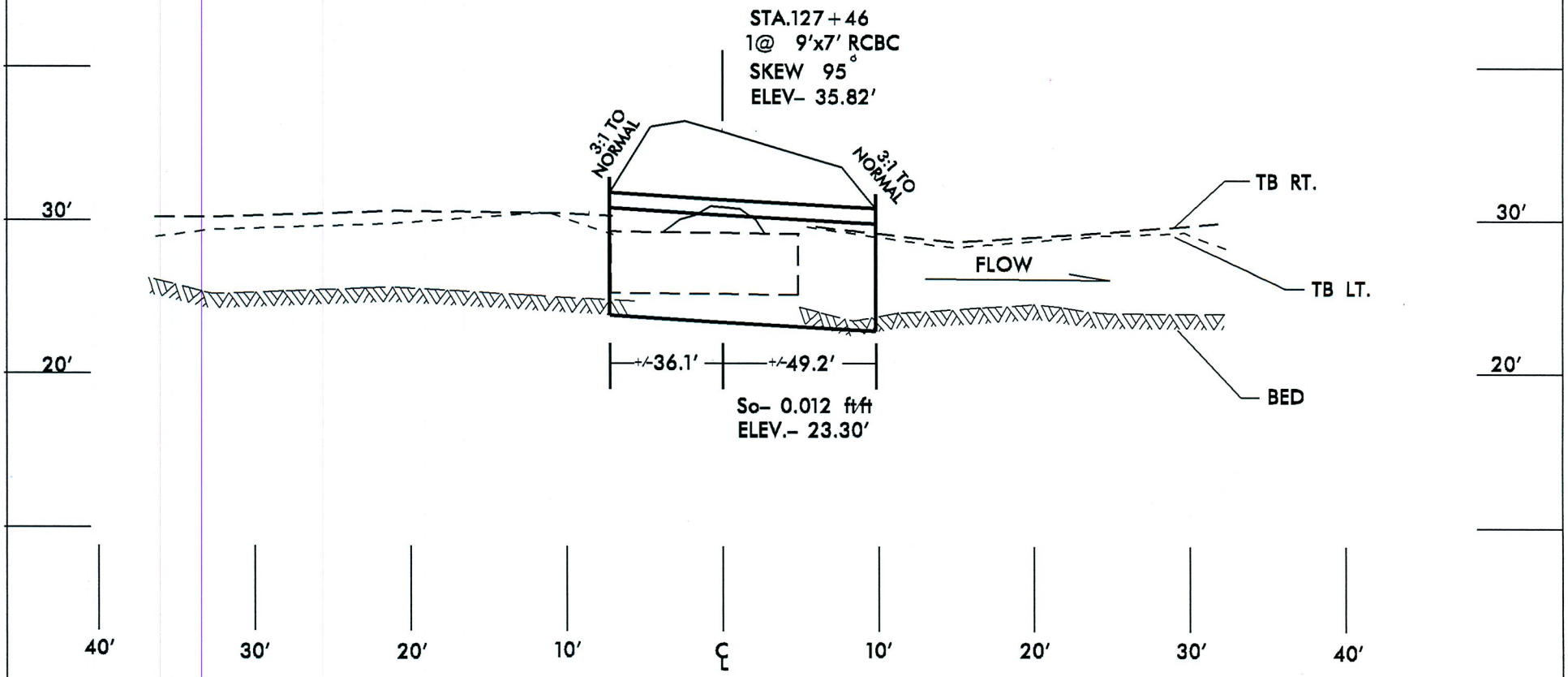
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 34531.1.1 (R-3324)

NEW ROUTE FROM NC 133 AND NC 87

SHEET OF 11/06/12



PROFILE

SITE XI

Permit Drawing
Sheet 48 of 51

NCDOT

DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 34531.1.1(R-3324)

NEW ROUTE FROM NC 133
TO NC 133 AND NC 87

SHEET OF

LOW FLOW CHANNEL AND SILLS

(NOT TO SCALE)

*NOTES:

1) BED MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADATION SIZE SIMILAR TO THAT OF CLASS 'B' RIP RAP. STONES LARGER THAN 6 INCHES SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL. BED MATERIALS SUBJECT TO APPROVAL BY THE ENGINEER.

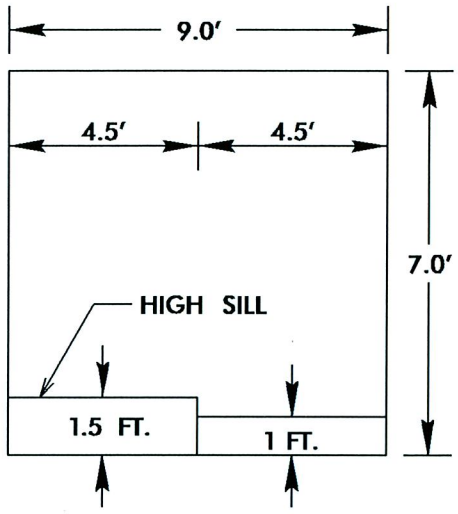
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

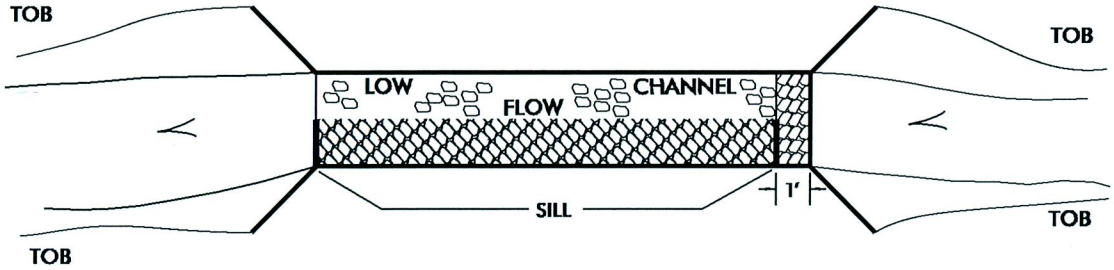
4) CLASS 'B' RIP RAP MAY BE USED TO SUPPLEMENT NATURAL BED MATERIAL.

5) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.

6) NUMBER OF SILLS DETERMINED BY THE ENGINEER.



SILLS AT INLET AND OUTLET



PLAN VIEW

Permit Drawing
Sheet 49 of 51

PLAN VIEW

SITE XI
-L- STA. 127+46
1 @ 9' X 7' RCBC

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 34531.1.1 (R-3324)

NEW ROUTE FROM NC 133 AND NC 87

SHEET OF 10/30/12

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
4	GREGORY K. HEDRICK	504 INDIAN WELLS CIRCLE LEXINGTON, N.C. 27295
5	BUFFLE HEAD PROPERTIES,LLC	P.O. BOX 3069 BALD HEAD ISLAND, N.C. 28461
6	SOUTHEAST CINEMA ENTERTAINMENT,INC	4523 PARK ROAD #A-105 CHARLOTTE, N.C. 28209
7	SOUTHPORT-OAK ISLAND CHAMBER OF COMMERCE	HWY 133 LONG BEACH RD. SOUTHPORT, N.C. 28461
43	TRI CITY, INC.	TRI CITY SHOPPING CENTER ROCKINGHAM, N.C. 28379
44	ALLEN J. EARP	P.O. BOX 3649 WILMINGTON, N.C. 28406
45	CHARLES F. RIGGS	202 WARLICK ST. JACKSONVILLE, N.C. 28540
49	PROGRESS ENERGY CAROLINA,INC.	P.O. BOX 14042 ST. PETERSBURG,FL. 33733
53	MARTIN MARIETTA,INC	2700 WYCLIFF RD. SUITE 104 RALEIGH, N.C. 27607

Permit Drawing
Sheet 50 of 51

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 34531.1.1 (R-3324)

NEW ROUTE FROM NC 133
TO NC 133 AND NC 87

SHEET OF

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
I	22+00 -L-	BRG 3@45'						0.02	0.01	91	92	
II	12+30-25+00-Y1-	N/A	0.10		0.03							
IV	51+70-60+00-L-	2@60" RCP	0.15				0.06	0.05		530		
V	61+00-73+40-L-	N/A	1.98		0.05		0.35	0.03		242		
VI	83+50-91+70-L-	BRG 3@55'	1.08	0.39	0.18	0.21		0.10		395	73	
VII	98+00 -L-	48" RCP	0.03				0.03	0.03	0.01	221	38	
VIII	104+00-107+70-L-	N/A	0.56				0.12					
IX	112+80 -L-	2@7'x8' RCBC						0.02	0.01	128	55	
X	113+60-118+80-L-	N/A	0.49				0.14					
XI	123+50-127+60-L-	1@9'x7' RCBC	1.05			0.22		0.01	0.01	96	46	
XII	32+00-81+50-Y2-	N/A			0.09		0.43					
XIII	46+00-47+30-Y1-	N/A	<0.01		0.04		0.01					
TOTALS:			5.44	0.39	0.39	0.43	1.14	0.26	0.04	1703	304	

Permit Drawing
Sheet 51 of 51

Note: 0.48 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
WBS - 34531.1.1 (R-3324)

SHEET 11/6/2012

ATN Revised 3/31/05